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PATENT OFFICE NOTICES

Trial Voluntary Protest Program

After reviewing the comments received as a result of the Notice of Proposed Rule Making entitled, "Protests to the Grant of a Patent," dated May 15, 1973, published at 911 O.G. 760, the Patent Office has decided to institute a Trial Voluntary Protest Program limited to 2,000 applications.

The underlying purpose of protest proceedings is to assist the Patent Office by bringing the best prior art and information relevant to the patentability of a patent application to the examiner's attention. Occasionally patents are held invalid by the courts because of prior art or other information which was not available or known to the examiner. Protest proceedings are intended to elicit from the public such prior art or other information not cited by the examiner which bears upon the question of patentability.

Several benefits are expected to accrue from protest proceedings. First, patents would have a more meaningful presumption of validity because of appropriate consideration by the examiner of additional evidence submitted by the public. Second, potential competitors of the applicant would benefit from having the opportunity to call to the attention of the Patent Office information that could either prevent a patent from issuing or lead to claims of more restricted scope. Further, the protest proceedings may be helpful in minimizing the more expensive conventional procedure of litigating the question of validity at a later date. Finally, the public would benefit from the resultant strengthening of the presumption of validity of patents granted on applications which underwent protest proceedings and the strengthening of the patent system for its intended purposes.

Since legislation is pending in Congress which would make opposition or protest proceedings mandatory in all allowed applications, it appears appropriate and desirable to gain some experience at this time with a Trial Voluntary Protest Program. The Patent Office would welcome any comments, from those who elect to participate in the program, relative to their experience concerning the effectiveness, costs, etc.

Since the trial program is voluntary and limited to a selected number of applications, no rule changes are contemplated or considered necessary at this time.

Applications Involved

The 2,000 applications involved in the Trial Voluntary Protest Program will include 135 applications allowed in each of the 14 examining groups excluding Group 220, and 110 applications allowed in Group 220, after July 1, 1974. No other applications will be made part of the trial program. The applications in the trial will be limited to the 1970 filing date series and will exclude all reissue, plant, and design applications. Also, applications which have been invoved in proceedings before the Board of Appeals, the Board of Patent Interferences, or the courts will be excluded from the trial program.

Waiver of Confidentiality

A form letter will be sent to the applicant of each of the 2,000 applications involved in the trial. The letter will indicate that the application is one of the selected applications and will afford to applicant the opportunity to participate in the program by filing a voluntary waiver of confidentiality thereby making his application available for protest.

Response to Request for Waiver of Confidentiality

The applicant will have two months after the mailing of the form letter concerning waiver of confidentiality to either (1) file the waiver of his right to keep the application confidential, signed by the applicant, assignee of record, or attorney or agent of record, or (2) indicate that he does not desire to participate in the trial program. A response from the applicant to the form letter will be requested. Such response is considered desirable to allow prompt processing of all 2,000 applications selected for the Trial Voluntary Protest Program. No extension of the two month period will be granted.

If the applicant declines to participate in the program, his application will be forwarded to the Patent Issue Division for mailing of the Notice of Allowance. In these situations no record of the correspondence will be made in the application file. Also, the Patent Office will not keep any records concerning the identity of the particular applications where the opportunity to participate in the program was declined.

If a proper waiver of the right to confidentiality is submitted within two months of the date of the form letter regarding voluntary waiver, the application will be placed in the Trial Voluntary Protest Program.

Following an affirmative response a notice, identifying the application will be published in the Official Gazette similar to that used for patents. The notice will include necessary identifying information, including the examining group, to which the application is assigned, an illustrative figure, a representative claim or claims, and a listing of references cited by the Patent Office.

On the date the notice is published in the Official Gazette, the application file will also be made available for public inspection for the duration of the protest period in the examining group and the application will be available in printed form similar to a patent. The printed application will include all the figures and the specification, including claims. All printed applications will be classified and placed in the Patent Office search files. Copies of the printed applications will be available to the public at the prices set by statute for patent copies.

Period for Filing Protest

Protesters will have a period of three months running from date of publication of the noice in the Official Gazette in which to file their protest in the Patent Office. Each protest must be filed in duplicate, and include the grounds which the protester believes have a bearing on the patentability of any claim contained in the published application. If the grounds are based on prior art, the protest should include a copy of the prior art together with an explanation of the relevance of such prior art to the allowed claims. In addition or alternatively, the protester will have the opportunity to comment on the manner in which the prior art of record was applied and raise any other matter which may affect the patentability of the claimed invention. In cases where prima facie evidence is presented as to prior public use or sale of the invention, the public use proceedings set forth in Rule 292 will be used to provide the protester presenting such evidence with an opportunity to be heard. No extension of the three month period will be granted.

Protester Involvement

A protester may elect to either (1) have his identity kept secret and have no further participation in the proceedings or (2) be recognized in the application file and become involved in any future prosecution of the application.

In both instances the protester must initially identify himself and give his address; however, if he elects to forego future involvement, he may identify himself on a cover letter and request that the cover letter not be made of record. In such instances the cover letter will be destroyed upon completion of prosecution when the application is forwarded to either Patent Issue Division or the abandoned files.

Consideration of Protest

The published allowed application files will be retained ruring the protest period in the examining groups. The examining groups will receive all protests filed, acknowledge receipt thereof, and make them of record in the application files. At the end of the period for filing protests, three months after publication in the Official Gazette, those applications in which no protests have been filed will be forwarded to the Patent Issue Division for mailing of the Notice of Allowance, while those applications in which protests have been filed will be referred to the group director for decision as to whether prosecution should be reopened.

If the group director decides that the evidence submitted does not constitute a prima facie showing of non-patentability of any allowed claim, the application will be forwarded to the Patent Issue Division for mailing of the Notice of Allow-

ance. The protesters who elected to participate in subsequent prosecution will be notified that the prosecution has not been reopened, and the applicant will be sent the duplicate copy of all protests. The group director's decision will be final and not subject to petition by any protester.

If the group director decides that the submitted evidence constitutes a prima facie showing of non-patentability of any allowed claim, prosecution of the application will be reopened and the application will be re-examined. The decision to reopen prosecution will be communicated to the applicant by means of an Office action, signed by a primary examiner, rejecting any claim believed unpatentable. The duplicate copy of all protests will be mailed to the applicant with the Office action. Protesters who elected to participate in later prosecution and submitted evidence on which the rejection is based will be identified in the Office action and will also receive copies of this and subsequent Office actions. Other protesters who elected to participate in later prosecution will be notified that prosecution has been reopened, but based on evidence and for reasons other than those submitted by them and that, consequently, no further correspondence will be directed to them. The applicant will normally be given a three month shortened statutory period to respond to the Office action.

RESPONSE TO SUBSEQUENT OFFICE ACTIONS BY THE APPLICANT

As a result of re-exmination of the application, the applicant will be permitted to respond, such as by presenting amended or new claims which will be subject to further consideration by the primary examiner. In order to allow protesters, who submitted evidence on which a rejection in the Office action is based and who elected to participate in later prosecution, to comment upon further proceedings, applicant will be required to serve by mail upon each protester identified in the Office action, a copy of any response, including appeal brief, filed. Indication of such service will be a required component of a complete response. Applicant need only reply to the rejections and objections made in the Office action. There need be no specific response to any other points raised by the protesters.

COMMENT ON APPLICANT'S RESPONSE BY THE PROTESTER

Each protester served will be allowed one month, running from the date applicant's response or brief is received in the Patent Office, to file comments relating thereto. All communications from protesters must be in writing. Examiner interviews with the protesters will not be permitted. No extensions of the one month period will be granted.

CONCLUSION OF PROSECUTION

If, after further prosecution, the application is found to be allowable, all protesters still participating at that time will be notified thereof and the application will be forwarded to the Patent Issue Division. A decision of the primary examiner to allow an application will not be subject to petition by any protester.

C. MARSHALL DANN,
Commissioner of Patents.

May 7, 1974.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,697,908, F. F. Offner, SYSTEM FOR ACCELERATING ENGINES TO SELECTED SPEEDS AND MAINTAINING THE SPEED SELECTED; **Re. 24,809,** same, ELECTRONIC ENGINE SPEED CONTROL SYSTEM, **filed** Oct. 1, 1971, Ct. of Claims (District of Columbia), Doc. 174–64, *Technical Development Corporation and Franklin P. Offner* v. *The United States.* Defendant held fully licensed under Claims 3, 4, and 5 of Re. 24,809 and defendant held fully licensed under Claims 11 and 35 of 2,697,908. Case remanded to trial commissioner for further appropriate proceedings, June 20, 1973.

2,777,926, M. E. Bourns, VARIABLE RESISTOR, **filed** Oct. 11, 1973, Ct. of Claims (District of Columbia), Doc. 383–73, *Bourns, Inc. and Marlan E. Bourns* v. *The United States.*

3,367,126, J. D. Howell, FLOATING AGITATOR; **3,381,302,** Reimus and Saporito, FREEZE CONCENTRATION OF COFFEE EXTRACT; **3,404,007,** J. G. Muller, FREEZE DRIED COFFEE PROCESS AND PRODUCT; **3,449,129,** Reimus and Saporito, CONCENTRATION PROCESS; **3,474,723,** same, BEVERAGE APPARATUS; **3,495,522,** J. G. Muller, same; **3,531,295,** N. Ganiaris, FREEZE CONCENTRATION OF COFFEE EXTRACT; **3,620,034,** same, MULTI-STAGE FREEZE CONCENTRATION OF COFFEE; **3,632,353,** Reimus and Saporito, REMOVAL OF TARS AND WAXES IN FREEZE CONCENTRATION OF COFFEE; **3,636,722,** N. Ganiaris, CONCENTRATION OF COFFEE, **filed** Apr. 13, 1972, D.C., N.D. Ga. (Atlanta), Doc. 16467, *Struthers Patent Corporation* v. *The Coca-Cola Company.* Case dismissed by stipulation pursuant to Rule 41(a)(1)(ii), FRCP, Oct. 10, 1973.

3,381,302. (See 3,367,126.)

3,404,007. (See 3,367,126.)

3,449,129. (See 3,367,126.)

3,474,723. (See 3,367,126.)

3,636,611, I. W. Rosenbaum, APPARATUS FOR SPLICING WIRES, **filed** June 20, 1973, D.C., E.D.N.Y. (Brooklyn), Doc. 73–C–896, *General Staple Co., Inc.* v. *Amtronics, Inc.*

3,648,310, F. W. Butler, BOAT STRUCTURE, **filed** Oct. 8, 1973, D.C.S.C. (Columbia), Doc. 73–1267, *Frank W. Butler* v. *Jack A. Helms.*

3,650,816, Rudy and Rapisarda, METHOD OF APPLYING ADJUSTMENTS TO CLOTH, **filed** Oct. 12, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2632, *A. E. Staley Mfg. Co.* v. *Lever Brothers Co.*

3,712,772, K. Neudecker, MOTION PICTURE PROJECTOR WITH CARRIAGE FOR SETS OF FILM-CONTAINING CASSETTES, **filed** Oct. 19, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c2693, *Hunkar Laboratories, Inc.* v. *Bekum-Maschinenfabriken GmbH.*

3,715,895, E. J. Devlin, DRINKING CUP FOR FREEZING A BEVERAGE TO A SLUSH-LIKE CONDITION, **filed** Feb. 20, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c442, *Glacier Ware, Inc.* v. *Goldblatt Brothers, Inc.*

3,716,871, A. G. Borse, DISPOSABLE URINAL, **filed** July 9, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1763, *Borse Plastic Products Corporation* v. *Premium Plastics, Inc.*

3,722,399, J. E. Cole, POPCORN POPPER HAVING AUTOMATIC BUTTERING MEANS, **filed** July 6, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1753, *Scovill Manufacturing Company* v. *Reliable Manufacturing Company.*

3,727,536, R. D. Bunker, EXPOSED PRINTING PLATE WASHER, **filed** Aug. 1, 1973, D.C., C.D. Utah (Salt Lake City), Doc. NC–38–73, *Aero-Tech Manufacturing, Inc.* v. *Dyna-Flex Corporation and Richard D. Bunker.*

3,731,649, Anderson and Castro, RIBBON-INKING MACHINE; **3,733,211,** same, **filed** July 3, 1973, D.C. Pa. (Philadelphia), Doc. C.A. 73–1509, *Westates Space-Era Products, Inc. and Wespac/Atlantic* v. *Edward Seymour, doing business as Eastern Ribbons and William E. Seymour, doing business as Bonner Products and W. Bonner.*

3,733,211. (See 3,731,649.)

3,765,015, R. H. Gruner, SWITCH MONITORING CIRCUITRY, **filed** Oct. 23, 1973, D.C. Del. (Wilmington), Doc. 4749, *Data General Corporation* v. *Digital Computor Controls, Inc.*

Re. 24,809. (See 2,697,908.)

3,091,434, D. S. Monitor, FAIRED CABLE DRIVE SYSTEM; **3,340,720,** G. N. Chartier, AUTOMOBILE REPAIR TOOL; **3,611,575,** same, AUTO FRAME ALIGNMENT APPARATUS; **3,635,434,** same, WHEEL SUPPORT, **filed** Aug. 14, 1973, D.C., C.D. Calif. (Los Angeles), Doc. 73–1892–MML, *Guy-Chart Tools Ltd.* v. *American Best Tool Corp. and William T. Martin.* Judgment in favor of plaintiff permanently enjoining defendants from infringing plaintiff's patents, plaintiff waives without prejudice its claims for accounting of damages. Defendant's counterclaim dismissed with prejudice entered Feb. 20, 1974.

3,131,583, R. W. Wilson, APPARATUS FOR BULK CURING TOBACCO; **3,244,445,** same, APPARATUS FOR SUPPORTING TOBACCO LEAVES IN BULK FORM FOR CURING, **filed** Feb. 25, 1974, D.C., M.D. Fla. (Jacksonville), Doc. 74–124–C–J–R, *Powell Manufacturing Company, Inc.* v. *Suwannee Valley Gas, Inc.*

3,134,718, A. Noblle, PREGNA-1,4-DIENES AND COMPOSITIONS CONTAINING SAME, **filed** Mar. 23, 1973, D.C.N.J. (Newark), Doc. 404–73–C, *Schering Corporation* v. *Premo Pharmaceutical Laboratories, Incorporated.* Judgment in favor of plaintiff; permanent injunction, Feb. 20, 1974.

3,145,291, H. B. Brainerd, IDENTIFICATION SYSTEM, **filed** Feb. 14, 1974, Court of Appeals, First Circuit, Mass. (Boston), Doc. 74–1059, *Sylvania Electric Products, Inc.* v. *Henry B. Brainerd.*

3,244,445. (See 3,134,583.)

3,274,906, Worson and Dill, JOINT INSTALLATION APPARATUS, **filed** Feb. 7, 1974, D.C., C.D. Calif. (Los Angeles), Doc. 74–334–R, *Edoco Technical Products, Inc.* v. *Griffith Co.*

3,340,720. (See 3,091,434.)

3,370,890, M. E. Morgan, PNEUMATIC CONVEYORS FOR DRY PORTLAND CEMENT; **3,602,552,** same, DRY FLOW PUMPS; **Reg. No. 858,891** (DRI-FLO), Mason Edward Morgan; **Reg. No. 866,987** (TKE), Tau Kappa Epsilon Fraternity, **filed** Jan. 18, 1974, D.C. Colo. (Denver), Doc. 74–62, *Mason Edward Morgan* v. *International Industries, Inc. et al.*

3,439,461, Chandler, Heuser, Juba, BURIAL VAULTS; **3,787,545,** same, **filed** Feb. 11, 1974, D.C., N.D. Ind. (Hammond), Doc. H–74–43, *Wilbert, Inc. and Calumet Wilbert Vault Corp.* v. *Gary Vault Company.*

3,547,108, S. V. Seiffert, COMBINATION DEFIBRILLATOR AND HEARTBEAT MONITORING SYSTEM, **filed** Jan. 24, 1974, D.C., N.D. Ill. (Chicago), Doc. 74c213, *Physio-Control Corporation* v. *Travenol Laboratories, Inc.*

3,553,737, J. Bauman, METHOD OF APPLYING HAIR, **filed** Feb. 11, 1974, D.C., E.D. Calif. (Los Angeles), Doc. 74–359–F, *Plus Hair Centers International Inc.* v. *Dura-Hair International Inc.*

3,563,365, H. T. Loberg, ACCUMULATING CONVEYOR, **filed** June 22, 1973, D.C., N.D. Ill. (Chicago), Doc. 73c1626, *Henry Thomas Loberg* v. *Rheem Manufacturing Company.* Order motion by stipulation for dismissal of this action under Rule 41(a) of FRCP, granted Nov. 21, 1973.

3,602,552. (See 3,370,890.)

3,611,575. (See 3,091,434.)

3,613,612, C. T. Kennedy, HIGH STRENGTH TUFTED PILE FABRIC, **filed** July 28, 1972, D.C., N.D. Ga. (Atlanta), Doc. 16931, *Thiokol Chemical Corporation* v. *E. T. Barwick Industries and Amoco Fabrics Company.* Order, action dismissed with prejudice; patent is invalid and unenforceable, entered Jan. 17, 1974.

3,635,434. (See 3,091,434.)

3,705,963, King and Stein, MATRIX SWITCH WITH SLIDE TYPE ACTUATOR AND CONDUCTIVE SPRING COMMON TO GROUND CONTACT AND MOVABLE CONTACT, **filed** Feb. 11, 1974, D.C. Md. (Baltimore), Doc. K–74–153, *William L. King* v. *Quadutron, Inc. et al.*

3,710,099, T. H. Chapman, OPTICAL UNIT FOR USE IN A LIGHT-SENSITIVE SORTING MACHINE, **filed** June 22, 1973, D.C., E.D. Mich. (Detroit), Doc. 40323, *Gunson's Sortex Limited* v. *Mandrel Industries, Inc. and Wickes Corporation.*

3,750,882, G. W. Hays, AUTOMATIC GRADER, **filed** Feb. 22, 1974, D.C., E.D. Va. (Richmond), Doc. 74–0090–R, *AMF Incorporated* v. *Universal Leaf Tobacco Co. et al.*

3,787,545. (See 3,439,461.)

Reg. No. 858,891. (See 3,370,890.)

Reg. No. 866,987. (See 3,370,890.)

Certificates of Correction for the Week of July 9, 1974

D. 227,704	3,763,470	3,784,060	3,792,006
D. 230,092	3,763,926	3,784,159	3,792,068
D. 230,934	3,763,983	3,784,297	3,792,073
Re. 27,747	3,764,054	3,784,334	3,792,306
3,523,750	3,764,313	3,784,359	3,792,318
3,609,107	3,764,494	3,784,885	3,792,977
3,628,781	3,764,546	3,784,896	3,792,999
3,629,379	3,764,565	3,784,981	3,793,041
3,637,710	3,764,571	3,785,298	3,793,086
3,664,843	3,764,831	3,785,312	3,793,159
3,664,848	3,765,084	3,785,320	3,793,282
3,666,789	3,765,784	3,785,439	3,793,394
3,668,222	3,766,242	3,785,511	3,793,446
3,668,716	3,766,375	3,785,874	3,793,452
3,670,388	3,767,016	3,785,921	3,793,554
3,671,744	3,767,409	3,786,046	3,793,757
3,680,345	3,767,669	3,786,137	3,793,864
3,682,381	3,768,497	3,786,226	3,793,897
3,691,830	3,768,636	3,786,239	3,794,087
3,692,964	3,768,846	3,786,270	3,794,146
3,693,491	3,768,887	3,786,439	3,794,167
3,701,940	3,769,640	3,786,638	3,794,363
3,706,074	3,770,297	3,786,690	3,794,369
3,708,049	3,770,708	3,786,755	3,794,377
3,708,641	3,771,288	3,786,962	3,794,687
3,711,385	3,771,329	3,787,035	3,794,750
3,711,475	3,771,422	3,787,110	3,794,751
3,714,133	3,771,768	3,787,117	3,794,990
3,715,188	3,772,005	3,787,351	3,795,107
3,715,330	3,772,035	3,787,365	3,795,181
3,717,636	3,772,138	3,787,447	3,795,278
3,718,608	3,772,183	3,787,605	3,795,403
3,722,651	3,772,207	3,787,649	3,795,457
3,723,423	3,772,336	3,787,839	3,795,468
3,725,388	3,772,877	3,787,874	3,795,517
3,728,352	3,772,884	3,788,118	3,795,600
3,729,521	3,773,503	3,788,343	3,795,736
3,730,356	3,773,877	3,788,373	3,795,800
3,732,201	3,774,029	3,788,386	3,795,868
3,733,524	3,775,702	3,788,463	3,796,149
3,734,901	3,776,267	3,788,498	3,796,239
3,734,973	3,777,067	3,788,729	3,796,241
3,735,085	3,777,375	3,788,785	3,796,621
3,737,045	3,778,119	3,788,796	3,796,638
3,739,033	3,778,344	3,788,854	3,796,659
3,739,822	3,778,463	3,788,863	3,796,894
3,740,761	3,779,044	3,788,865	3,797,148
3,742,621	3,779,383	3,789,091	3,797,219
3,742,786	3,779,524	3,789,092	3,797,293
3,743,868	3,770,601	3,789,142	3,797,319
3,745,413	3,779,930	3,789,232	3,797,456
3,747,304	3,780,117	3,789,574	3,797,529
3,748,343	3,780,275	3,789,630	3,797,744
3,748,510	3,780,569	3,789,725	3,797,764
3,749,097	3,780,587	3,789,767	3,797,936
3,754,594	3,780,737	3,789,838	3,797,963
3,754,673	3,781,205	3,789,881	3,798,031
3,754,714	3,781,266	3,789,952	3,798,091
3,754,909	3,781,459	3,790,494	3,798,101
3,755,246	3,781,764	3,790,684	3,798,279
3,757,485	3,781,782	3,790,691	3,798,320
3,757,839	3,781,806	3,790,693	3,798,517
3,757,866	3,781,888	3,790,823	3,799,085
3,758,591	3,781,935	3,790,869	3,799,140
3,758,596	3,781,941	3,790,873	3,799,858
3,759,081	3,781,972	3,790,954	3,800,337
3,759,537	3,782,473	3,791,021	3,800,492
3,761,065	3,782,496	3,791,246	3,800,571
3,761,255	3,783,127	3,791,342	3,800,598
3,761,263	3,783,162	3,791,517	3,801,027
3,761,304	3,783,179	3,791,602	3,801,691
3,761,435	3,783,185	3,791,670	3,802,401
3,761,606	3,783,353	3,791,889	3,803,527
3,762,008	3,783,604	3,791,910	3,804,714
3,762,476	3,783,741	3,791,921	3,805,096

Disclaimer and Dedication

3,796,627.—*Alfred Marzocchi*, Cumberland, R.I. RESORCINOL-ALDEHYDE RESIN AND ELASTOMER-GLASS FIBER STRUCTURES AND METHOD FOR PREPARATION. Patent dated Mar. 12, 1974. Disclaimer and dedication filed July 18, 1973, by the assignee, *Owens-Corning Fiberglas Corporation*.

Hereby disclaims and dedicates to the Public the portion of the term of the patent subsequent to Nov. 18, 1986.

National Technical Information Service

GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for licensing in accordance with the licensing policy of each agency-sponsor.

Copies of patent applications, either paper copy (PC) or microfiche (MF), can be purchased from the National Technical Information Service (NTIS), Springfield, Va. 22151, at the prices cited. Requests for copies of patent applications must include the patent application number and the title.

Paper copies of patents cannot be purchased from NTIS but are available from the Commissioner of Patents, Washington, D.C. 20231, at $0.50 each.

Requests for licensing information should be directed to the address cited below for each agency.

DOUGLAS J. CAMPION,
Patent Program Coordinator,
National Technical Information Service.

U.S. ATOMIC ENERGY COMMISSION
Assistant General Counsel for Patents,
Washington, D.C. 20545

Patent application 414,029. Removal of Heavy Metal Contaminants From Fluid Streams. Filed Nov. 8, 1973. PC $4/MF $1.45.

Patent application 436,401. Apparatus and Method for Large Tunnel Excavation in Hard Rock. Filed Jan. 25, 1974. PC $4/MF $1.45.

Patent application 436,402. Apparatus and Method for Large Tunnel Excavation in Soft and Incompetent Rock or Ground. Filed Jan. 25, 1974. PC $4/MF $1.45.

Patent 3,762,133. Process for the Separation of Components From Gas Mixtures. Filed Oct. 15, 1971. Patented Oct. 2, 1973. Not available NTIS.

Patent 3,762,486. Big Hole Drilling Bit. Filed Mar. 6, 1972. Patented Oct. 2, 1973. Not available NTIS.

Patent 3,762,992. Laser-Driven Fusion Reactor. Filed Mar. 1, 1972. Patented Oct. 2, 1973. Not available NTIS.

Patent 3,764,660 Chemical Processing in Geothermal Nuclear Chimney. Filed May 17, 1971. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,766,082. Sintering of Compacts of UN (U, Pu), N, and PuN. Filed Apr. 20, 1971. Patented Oct. 16, 1973. Not available NTIS.

Patent 3,767,525. Irradiation Subassembly. Filed Oct. 6, 1972. Patented Oct. 23, 1973. Not available NTIS.

Patent 3,767,930. Radioisotopic Heat Source. Filed June 21, 1972. Patented Oct. 23, 1973. Not available NTIS.

Patent 3,769,911 Contact Fuse. Filed Dec. 14, 1971. Patented Nov. 6, 1973. Not available NTIS.

Patent 3,772,004. Uranium, Niobium and Carbon Alloy. Filed Aug. 11, 1972. Patented Nov. 13, 1973. Not available NTIS.

Patent 3,414,570. N_2, N_4, N_6-Tripicrylmelamine. Filed June 8, 1966. Patented Dec. 3, 1968. Not available NTIS.

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AF/JACP, Washington, D.C. 20314

Patent application 289,692. Liquid Cooler Mirror Structure. Filed Sept. 5, 1972. PC $4/MF $1.45.

Patent application 314,638. Surface Wave Delay Line With Quarter-Wave Taps. Filed Dec. 13, 1972. PC $4/MF $1.45.

Patent application 323,152. An Associative Storage Apparatus for Comparing Between Specified Limits. Filed Jan. 12, 1973. PC $4/MF $1.45.

Patent application 343,061. Method and Means for Equalizing the Response of Signal Channels in a Multiple Channel Infrared System. Filed Mar. 20, 1973. PC $4/MF $1.45.

Patent application 349,515. Signal Analyzing Apparatus for Time Sequential Signals. Filed Apr. 9, 1973. PC $4.50/MF $1.45.

Patent application 349,900. Solid Fuel Burner for Ramjet Engine. Filed Apr. 9, 1973. PC $4/MF $1.45.

Patent application 354,261. Combustion Device. Filed Apr. 25, 1973. PC $4/MF $1.45.

Patent application 354,263. Technique and Apparatus for Stabilizing the Frequency of a Gas Laser. Filed Apr. 25, 1973. PC $4/MF $1.45.

Patent application 356,269. Doppler Data Processor With Digital Computing Pulse Rate Filter. Filed May 1, 1973. PC $4.25/MF $1.45.

Patent application 357,037. Photocathode. Filed May 3, 1973. PC $4.50/MF $1.45.

Patent application 357,039. Embedded Porous Element Rocket Motor. Filed May 3, 1973. PC $4/MF $1.45.

Patent application 366,887. Process for Preparing Mullite Powder and Fabrication of Structural Bodies Therefrom. Filed June 4, 1973. PC $4/MF $1.45.

Patent application 369,654. Method of Manufacturing a Multi-Layered Strip Transmission Line Printed Circuit Board Integrated Package. Filed June 13, 1973. PC $4/MF $1.45.

Patent application 369,655. Integral Precombustor/Ramburner Assembly. Filed June 13, 1973. PC $4/MF $1.45.

Patent application 380,420. A Spiral Antenna Stripline Termination. Filed July 18, 1973. PC $4/MF $1.45.

Patent application 380,520. Lock and Release Mechanism for Propellant Actuated Escape System. Filed July 18, 1973. PC $4/MF $1.45.

Patent application 384,531. Multiport Multimode Slot Antenna. Filed Aug. 1, 1973. PC $4/MF $1.45.

Patent application 392,383. Support for Flexible Control Device. Filed Aug. 28, 1973. PC $4/MF $1.45.

Patent application 392,387. Single Phase Sintering Aid for Stabilized Zirconia. Filed Aug. 28, 1973. PC $4/MF $1.45.

U.S. DEPARTMENT OF AGRICULTURE

Chief, Research Agreements and Patent Mgmt. Branch, Federal Building, General Services Division, Agricultural Research Service, Hyattsville, Md. 20782

Patent application 290,933. Process for Acylating Functional Groups Bearing Active Hydrogen With Isopropenyl Esters of Long-Chain Fatty Acids. Filed Sept. 21, 1972. PC $4/MF $1.45.

Patent 3,732,872. Apparatus for the Uniform Addition of Soluble Materials to Cigarettes. Filed Aug. 31, 1971. Patented May 15, 1973. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Assistant General Counsel for Patent Matters, NASA—Code GP–2, Washington, D.C. 20546

Patent application 394,149. Servo-Controlled Intravital Microscope System. Filed Sept. 4, 1973. PC $4.50/MF $1.45.

Patent application 412,080. Laser System With an Antiresonant Optical Ring. Filed Nov. 2, 1973. PC $4.35/MF $1.45.

Patent application 438,147. Two Stage Light Gas Plasma Projectile Accelerator. Filed Jan. 29, 1974. PC $4/MF $1.45.

Patent application 446,561. Recording Apparatus. Filed Feb. 27, 1974. PC $4/MF $1.45.

Patent application 446,567. Method of Forming a Wick for a Heat Pipe. Filed Feb. 27, 1974. PC $4/MF $1.45.

Patent application 446,569. Self-Regulating Proportionally Controlled Heating Apparatus and Technique. Filed Feb. 27, 1974. PC $4/MF $1.45.

Patent application 450,500. Analysis of Volatile Organic Componnds. Filed Mar. 12, 1974. PC $5.25/MF $1.45.

Patent application 450,503. Symmetrical Odd-Modulus Frequency Divider. Filed Mar. 12, 1974. PC $4/MF $1.45.

Patent application 452,767. Shoulder Harness and Lap Belt Restraint System. Filed Mar. 19, 1974. PC $4/MF $1.45.

Patent Application 452,768. Visual Examination Apparatus. Filed Mar. 19, 1974. PC $4.25/MF $1.45.

Patent application 452,769. Thermoelectric Power System. Filed Mar. 19, 1974. PC $4/MF $1.45.

Patent application 452,770. A Doped Josephson Tunneling Junction for Use in a Sensitive IR Detector. Filed Mar. 19, 1974. PC $4.50/MF $1.45.

Patent application 453,232. A Space Vehicle. Filed Mar. 21, 1974. PC $4/MF $1.45.

Patent 3,795,134. Anti-Buckling Fatigue Test Assembly. Patented Mar. 5, 1974. Not available NTIS.

Patent 3,796,592. Method and Apparatus for Stable Silicon Dioxide Layers on Silicon Grown in Silicon Nitride Ambient. Patented Mar. 12, 1974. Not available NTIS.

Patent 3,799,793. Formation of Star Tracking Reticles. Patented Mar. 26, 1974. Not available NTIS.

Patent 3,800,074. Apparatus for Scanning the Surface of a Cylindrical Body. Patented Mar. 26, 1974. Not Available NTIS.

[F.R. Doc. 74–14046; Filed 6–18–74; 8:45 am]

U.S. ATOMIC ENERGY COMMISSION

Assistant General Counsel for Patents, Washington, D.C. 20545

Patent application 350,860. Automated Sample-Reagent Loader. Filed Apr. 13, 1973. PC $4/MF $1.45.

Patent application 357,758. Diagnoses of Disease States by Fluorescent Measurements Utilizing Scanning Laser Beams. Filed May 7, 1973. PC $4/MF $1.45.

Patent application 363,221. Pulsed Multiline CO_2 Laser Oscillator Apparatus and Method. Filed May 23, 1973. PC $4/MF $1.45.

Patent application 364,397. Telecommunication Using Moon Beams. Filed May 29, 1973. PC $4/MF $1.45.

Patent application 367,657. Method of Diagnosing a Disease Utilizing Enzyme-Labeled Anti-Bodies. Filed June 6, 1973. PC $4/MF $1.45.

Patent Application 367,680. Low Density Syntactic Foams. Filed June 6, 1973. PC $4/MF $1.45.

Patent Application 367,683. Doppler-Shift Velocity Measurement System Using a Two-Frequency Laser. Filed June 6, 1973. PC $4/MF $1.45.

Patent 3,764,466. Production of Plasmas by Long-Wavelength Lasers. Filed Apr. 1, 1971. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,764,467. Fast Breeder Reactor Protection System. Filed Dec. 22, 1971. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,764,552. Method for Storing Radioactive Combustible Waste. Filed June 14, 1972. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,764,553. Removal of Radioisotopes From Waste Solutions. Filed Aug. 18, 1972. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,766,526. Multi-Microprogrammed Input-Output Processor. Filed Oct. 10, 1972. Patented Oct. 16, 1973. Not available NTIS.

Patent 3,767,929. Method and Means for Measuring the Anisotropy of a Plasma in a Magnetic Field. Filed June 15, 1972. Patented Oct. 23, 1973. Not available NTIS.

DEPARTMENT OF THE AIR FORCE

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Patent application 404,060. Quick Release Open Link. Filed Nov. 5, 1973. PC $4.50/MF $1.45.

Patent application 404,083. Sliding Segment Roller. Filed Oct. 5, 1973. PC $4/MF $1.45.

Patent application 404,091. The Chemical Protection of Asbestos. Filed Oct. 5, 1973. PC $4/MF $1.45.

Patent application 405,620. Apparatus for Laser Frequency Selection. Filed Oct. 11, 1973. PC $4/MF $1.45.

Patent application 405,722. Gauge Installation Tool. Filed Oct. 11, 1973. PC $4/MF $1.45.

Patent application 407,357. Base Two Exponential Counter. Filed Oct. 17, 1973. PC $4/MF $1.45.

Patent application 407,379. Ceramic Ductile Metal Composites. Filed Oct. 17, 1973. PC $4/MF $1.45.

U.S. DEPARTMENT OF AGRICULTURE

Chief, Research Agreements and Patent Mgmt. Branch, Federal Building, General Services Division, Agricultural Research Service, Hyattsville, Md. 20782

Patent application 176,620. Improved, Easily Folding Strip Chart Records. Filed Aug. 20, 1973. PC $4/MF $1.45.

Patent application 278,661. Process for Reducing the Hygroscopicity of Dehydrated Fruits. Filed Aug. 7, 1972. PC $4/MF $1.45.

Patent application 288,839. Stable Acidified Concentrated Milk Products and Methods of Preparation. Filed Sept. 13, 1972. PC $4/MF $1.45.

Patent application 323,194. Process for the Preparation of Beta Keto Aldehydes. Filed Jan. 12, 1973. PC $4/MF $1.45.

Patent application 335,859. Preparation of Enol Esters. Feb. 26, 1973. PC $4/MF $1.45.

Patent application 337,789. Physiochemically Designed Fat Compositions From Tallow and Process for Making. Filed Mar. 5, 1973. PC $4/MF $1.45.

Patent application 343,328. Method and Compounds for Disrupting Normal Insect Maturation. Filed Mar. 21, 1973. PC $4/MF $1.45.

Patent application 348,554. 2-Hydroperoxycarboxylic Acids and Their Preparation. Filed Apr. 6, 1973. PC 4/MF $1.45.

Patent application 360,279. Methods of Increasing the Attraction of the Gypsy Moth, Porthetria Dispar L. Filed May 16, 1973. PC $4/MF $1.45.

Patent application 365,898. A Method of Inhibiting the Formation of Nitrosamines in Cured Meat Products. Filed June 1, 1973. PC $4/MF $1.45.

Patent application 370,094. Doctoring Apparatus. Filed June 14, 1973. PC $4/MF $1.45.

Patent 3,692,532. Milk-Fruit Juice Beverage and Process for Preparing Same. Filed Oct. 20, 1970. Patented Sept. 19, 1972. Not available NTIS.

Patent 3,716,592. Process for the Preparation of Alkyl, Perfluoroalkyl and Aryl Iodides. Filed Nov. 12, 1971. Patented Feb. 13, 1973. Not available NTIS.

Patent 3,748,149. Continuous Production of Cheese Curd. Filed Feb. 14, 1972. Patented July 24, 1973. Not available NTIS.

Patent 3,749,669. Lubricants for Hides and Leather. Filed June 21, 1971. Patented July 31, 1973. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Assistant General Counsel for Patent Matters NASA—Code GP–2, Washigton, D.C. 20546

Patent 3,763,708. Cryogenic Gyroscope Housing. Patented Oct. 9, 1973. Not available NTIS.

Patent 3,788,163. Manual Actuator. Patented Jan. 29, 1974. Not available NTIS.

Patent 3,789,654. Method for Determining Thermo-Physical Properties of Specimens. Patent Feb. 5, 1974. Not available NTIS.

Patent 3,790,037. Metering Gun for Dispensing Precisely Measured Charges of Fluid. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,790,347. Apparatus for Remote Handling of Materials. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,790,650. Method for Compression Molding of Thermosetting Plastics Utilizing a Temperature Gradient Across the Plastic To Cure the Article. Patented Feb. 5, 1974. Not available NTIS.

Patent 3,795,448. Doppler Shift System. Patented Mar. 5, 1974. Not available NTIS.

[F.R. 74–14047; Filed 6–18–74; 8:45 am]

PATENT EXAMINING CORPS

WILLIAM FELDMAN, Acting Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF JUNE 22, 1974

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions: Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	7-2-73
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic, Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids, Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	6-11-73
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—A. P. KENT, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	11-15-73
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. L. LEAVITT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-23-73
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	5-21-73
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	11-14-73
SPECIAL LAWS ADMINISTRATION, GROUP 220—C. D. QUARFORTH, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	1-22-73
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-1-73
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	2-23-73
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-10-73
DESIGNS, GROUP 290—C. D. QUARFORTH, Director. Industrial Arts; Household, Personal and Fine Arts.	1-15-73
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—G. M. FORLENZA, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	1-2-74
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks.	10-16-73
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. PULFREY, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-2-73
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—B. R. GAY, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	9-10-73
GENERAL CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—M. M. NEWMAN, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	8-28-73

Expiration of patents: The patents within the range of numbers indicated below expire during July 1974, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

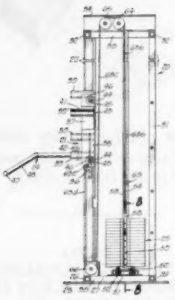
Patents..... Numbers 2,797,414 to 2,801,413, inclusive
Plant Patents..... Numbers 1,612 to 1,625, inclusive

REISSUES

JULY 9, 1974

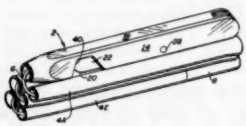
Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

28,066
SINGLE-STATION MULTIPURPOSE BODY-EXERCISING MACHINE
Walter Marcyan, 3055 Hollywell Place, Glendale, Calif. 91206
Original No. 3,635,472, dated Jan. 18, 1972, Ser. No. 817,729, Apr. 21, 1969. Application for reissue Feb. 1, 1973, Ser. No. 328,789
Int. Cl. A63b *21/00*
U.S. Cl. 272—81 **8 Claims**



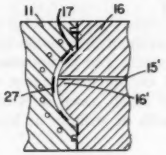
An exercising machine comprising an upright supporting structure, vertical tracks associated with the upright supporting structure, a carriage which slides vertically upwardly and downwardly on the vertical tracks, a lifting arm rigidly but removably connected to the carriage at any selected one of a plurality of vertically spaced connection points, and adjustable resistance means associated with the carriage to bias the carriage and lifting arm in a vertically downward direction, downward movement of the carriage being limited by stop elements.

28,067
COLLAPSIBLE ROD
Joseph Hyman, Newton Center, Mass., assignor to Hycor, Inc., Woburn, Mass.
Original No. 3,669,133, dated June 13, 1972, Ser. No. 44,239, June 8, 1971. Application for reissue Feb. 26, 1973, Ser. No. 335,717
Int. Cl. A45b *9/00*
U.S. Cl. 135—15 PQ **16 Claims**



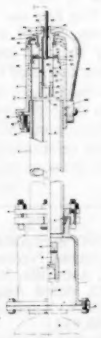
A collapsible rod structure adopted to be used as a cane, the structure comprises a plurality of tubular sections tethered together by a cord and separable to form a compact bundle.

28,068
ARTICLE DECORATION APPARATUS AND METHOD
Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840
Original No. 3,504,063, dated Mar. 31, 1970, Ser. No. 421,897, Dec. 29, 1964, which is a continuation-in-part of application Ser. No. 734,340, May 9, 1958, now Patent No. 3,173,175. Application for reissue Feb. 3, 1972, Ser. No. 223,287
Int. Cl. B29c *9/00*; B29f *5/00*
U.S. Cl. 264—24 **20 Claims**



The provision of an apparatus and method for selectively depositing a particulate material against one or more selected areas of the surface of a mold, retaining said material against the areas on which it is deposited, and solidifying the deposited material either prior to or immediately after disposing a molding material in the mold in a manner to fuse the deposited material to the molding material so as to form a unitary and integral structure of the two.

28,069
INDICATOR POSTS FOR USE IN CONJUNCTION WITH VALVES
Ronald Fortune, Hamilton, Ontario, Ernest G. Mills, Kitchener, Ontario, and James Beverley Woods, Preston, Ontario, Canada, assignors to Canada Valve Limited, Kitchener, Ontario, Canada
Original No. 3,554,160, dated Jan. 12, 1971, Ser. No. 812,255, Apr. 1, 1969. Application for reissue Oct. 25, 1972, Ser. No. 300,797
Int. Cl. F16k *37/00*
U.S. Cl. 116—125 **11 Claims**



An indicator device for a nonrising stem valve has a housing in which is mounted an elongated screw adapted

to be coupled to the valve stem. The screw is rotatable but cannot move axially. The screw is hollow and has a pair of elongated slots through which a bar extends transversely and an indicator rod, located in the hollow screw, is attached to the bar. The ends of the bar are attached to a follower threaded onto the screw. The follower nut can move axially of the screw but is restrained against rotation. The bar ends are connected to the nut in a manner to allow the bar to rotate with the screw. As the screw is turned the nut, bar and rod move axially of the screw.

28,070

ANTISTATIC POLYMER COMPOSITIONS

Gordon D. Brindell, Crystal Lake, Ill., and Leland E. Dannals, Waterbury, Conn., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Original No. 3,658,744, dated Apr. 25, 1972, Ser. No. 867,410, Oct. 17, 1969. Application for reissue Oct. 24, 1972, Ser. No. 300,045

Int. Cl. C09d *5/02;* **D03d** *27/00, 27/12*

U.S. Cl. 260—29.7 **28 Claims**

Polymer compositions are provided which are sufficiently electrically conductive so as to inhibit the build-up of electrostatic charges. The compositions contain an effective amount of an antistatic agent selected from the group consisting of alkali metal salts of organic acids or mixtures thereof with or without at least one polyhydric alcohol.

28,071

PORTABLE TYPE HANDLING APPARATUS

James E. Smart, Odessa, Tex., assignor to Automatic Pipe Racker, Incorporated, Odessa, Tex.

Original No. 3,494,483, dated Feb. 10, 1970, Ser. No. 765,209, Oct. 4, 1968. Application for reissue Feb. 10, 1972, Ser. No. 225,343

Int. Cl. E21b *19/00*

U.S. Cl. 214—1 P **13 Claims**

A pipe handling apparatus for racking pipe which includes a pair of cars slidably received upon an elongated track with the cars being positioned along the track in a pipe receiving relationship with respect to a pipe delivery chute. The cars include a latch means which enables movement of one of the cars to impart movement to the remaining car. The first car is positioned adjacent the chute to receive one end of a pipe, whereupon the pipe is transported by the car longitudinally along the track until the remaining marginal end portion of the pipe is received by the second car. A laterally arranged conveyor means transports the pipe away from the track and onto a pipe rack, whereupon the cars are again positioned in pipe receiving relationship with respect to the track and the chute in order to receive the next joint of pipe.

28,072

MIXING APPARATUS

Robert Sluijters, Arnhem, Netherlands, by Akzona Incorporated, Asheville, N.C., assignee

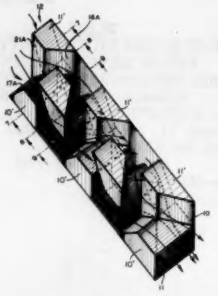
Original No. 3,051,453, dated Aug. 28, 1962, Ser. No. 821,917, June 22, 1959. Application for reissue June 11, 1973, Ser. No. 368,911

Claims priority, application Netherlands, July 8, 1958, 229,424

Int. Cl. B01f *5/06*

U.S. Cl. 259—4 **3 Claims**

A fluid mixer having no moving parts is disclosed in which a main stream of materials in a uniform cross-sectional conduit is divided into a number of substreams. The substreams are directly recombined in a manner that causes a direct and positive mixing of elements of the main stream. The positive mixing action allows precise control of the mixing action to the point of infinity, but may be concluded at any interim point.



28,073

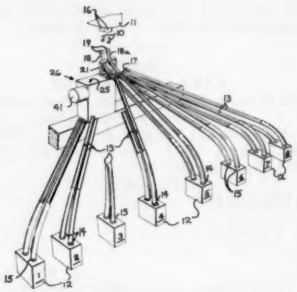
APPARATUS FOR HANDLING MOLD CHARGES OF MOLTEN GLASS

Urban P. Trudeau, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Original No. 3,597,187, dated Aug. 3, 1971, Ser. No. 681,651, Nov. 9, 1967. Application for reissue Aug. 1, 1973, Ser. No. 384,564

Int. Cl. C03b *5/32*

U.S. Cl. 65—304 **10 Claims**



The sequential delivery of plural mold charges or gobs to a plurality of glass forming machines positioned beneath a flow feeder. A single pair of scoops, having their upper, gob-receiving ends in vertical alignment with the double orifices of the flow feeder, are pivoted horizontally under the mechanical control of a cam operated drive mechanism so as to provide a predetermined, timed sequence of delivery of gobs falling from the orifices to the gob guides and deflectors of a plurality of forming machines.

PATENTS

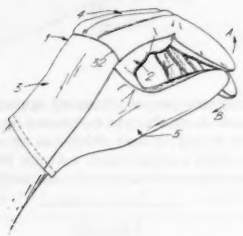
GRANTED JULY 9, 1974

GENERAL AND MECHANICAL

3,822,417
GLOVE AND METHOD OF MAKING

Pehr Lars-Jos, N. Moen, S-782 Malung, Sweden

Filed Nov. 8, 1972, Ser. No. 304,826
Claims priority, application Sweden, Nov. 9, 1971, 14266/71
Int. Cl. A41d *19/02*
U.S. Cl. 2—169 **10 Claims**



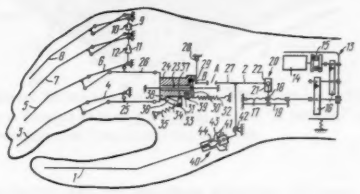
A glove constructed of tranks including a palm portion and a rear portion, and with the glove being closely adapted to the anatomy and natural motion of the hand. The palm portions of the finger compartments or stalls adapted to respectively receive the fore finger, middle finger, and little finger of the hand are obliquely inclined relative to an imaginary center line drawn through or along an edge of the trank for the glove portion encompassing the metacarpus of the hand, which edge of the trank which is coextensive with the outer edge of the trank portion for the little finger compartment being directed away from the thumb-forming portion of the glove.

3,822,418
ELECTRICALLY DRIVEN ARTIFICIAL HAND FOR UPPER EXTREMITY PROSTHESIS

Yakov Savelievich Yakobson, Leningradskoe shosse, 112/1, korpus 3, kv. 613; Alexandr Yakovievich Sysin, Kotelnicheskaya naberezhnaya, 25/8, kv. 25; Vyacheslav Stepanovich Leonov, ulita Kedrova, 16, korpus 1, kv. 36; Vladimir Alexeevich Ignatovich, Angarakaya ulitsa, 53, korpus 3, 72; Boris Petrovich Popov-Iliin, Orshanskaya ulitsa, 1, kv. 6; Alexandr Nikolaevich Skachkov, Leninsky prospekt, 39, kv. 292; Natalia Alexandrovna Skudina, Konkovo-Derevlevo, 1 mikroraion, korpus 10B, kv. 6; Sergei Gavrilovich Forichev, Ussuriskaya ulitsa, 5, kv. 342; Gavriil Artemovich Degtyarev, ulitsa Garibaldi, 12, kv. 99; Mirev Leizerovich Bir, ulitsa Nametkina, 15, korpus 2, kv. 48; Nikolai Ivanovich Kovanov, Proletarsky prospekt, 45, korpus 1, kv. 56; Jury Sergeevich Melnikov, ulitsa Krasikova, 11, kv. 75, and Lidia Mikhailovna Voskoboinikova, Novolesnaya ulitsa, 18, korpus 1, kv. 45, all of Moscow, U.S.S.R.

Filed Aug. 31, 1971, Ser. No. 176,530
Claims priority, application U.S.S.R., Sept. 4, 1970, 1465355
Int. Cl. A61f *1/00, 1/06*
U.S. Cl. 3—1.1 **12 Claims**

An artificial hand for upper extremity prosthesis, comprising a reversible electric drive controlled by, for example, bioelectric potentials produced by muscles, and kinematically associated with an actuating lever of the thumb and with at least one for the thumb-opposing fingers. The mechanical linkage interconnecting the electric drive with said thumb-opposing finger is essentially a disengageable unidirectional link-

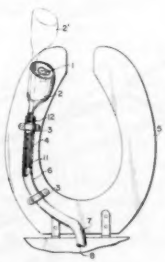


age capable of ensuring that the positive effect of the electric drive upon said finger occurs solely in the direction of extension thereof. The thumb-opposing finger is coupled to a spring actuating it in the direction of flexion thereof, and is provided with a lock to prevent it from being extended under any external force.

3,822,419
URINE CONVEYER

Charles Kenneth Wilson, Sr., 1908 Ruffs Mill Rd., Bel Air, Md. 21014

Filed Oct. 16, 1972, Ser. No. 297,902
Int. Cl. A47k *17/00, 11/00;* **E03d** *13/00*
U.S. Cl. 4—1 **6 Claims**



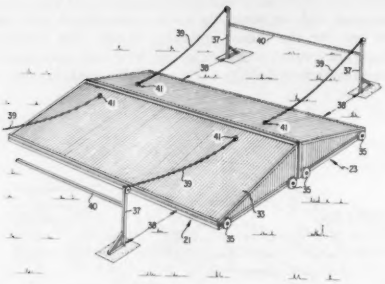
This invention pertains to a device, attachable to the underside of a toilet seat, adapted to receive urine from a standing person and convey it into the toilet bowl near the water level in a manner to avoid unsanitary splashing. A self rinsing feature as well as an extendible inlet end may be incorporated in the structure.

3,822,420

COVER FOR SWIMMING POOLS AND THE LIKE

Stanley A. Kindness, 1327 Michigan St., Oshkosh, Wis. 54901

Filed May 10, 1973, Ser. No. 359,076
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 4—172.14 23 Claims



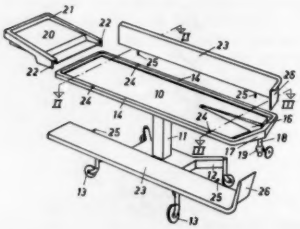
A cover for swimming pools and the like comprising two pitched sections mounted on wheels is disclosed. The pitched sections are formed of lightweight structural components covered with lightweight sheet material. Manual or power driven means are provided for rolling the sections back from the pool so as to entirely expose the surface of the liquid in the pool. In addition, manual or power driven means may be provided for moving the sections to a position where they cover the entire surface of the pool. In one alternate embodiment the sections are raised through an angle of approximately 90° after being fully or partially rolled back from their pool covering positions. In another alternate embodiment, the cover sections are formed in a telescoping manner so that they can be collapsed in size prior to being rolled back from their positions over the pool.

3,822,421

LITTER FOR TENDING BED-RIDDEN PATIENTS

Jan Loren, Vastra Frolunda, Sweden, assignor to Soderberg Tollman AB, Vastra Frolunda, Sweden

Filed Dec. 1, 1971, Ser. No. 203,662
Int. Cl. A47k *3/00*
U.S. Cl. 4—173 2 Claims



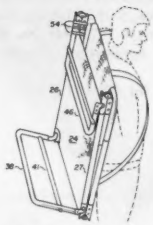
A litter on which bedridden patients may be washed in which a patient supporting surface of rectangular shape and being made of a liquid impermeable material is provided with a low upstanding peripheral rim and a wedge-shaped recess extends axially from one short end of the surface approximately one-half the length of the supporting surface and serves as a drain for the washing liquid.

3,822,422

COMBINATION MULTIPLE PURPOSE CAMPERS FOLDING COT AND PORTABLE PACK FRAME

Tom C. Buntyn, 6704 Langston, Austin, Tex.

Filed July 26, 1973, Ser. No. 383,296
Int. Cl. A45f *1/00, 3/00*
U.S. Cl. 5—114 1 Claim



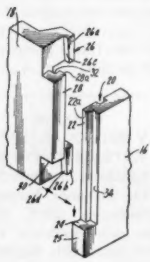
Portable multiple purpose camping apparatus adapted to serve as a pack frame that can be carried on the back of the camper when folded up and which can be unfolded on the camp site to form a camp chair, a chaise lounge or can be completely unfolded to form a cot for sleeping.

3,822,423

JOINT FOR ATTACHING MEMBERS AND BED FRAME

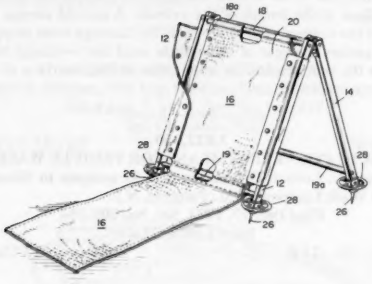
Edwin B. Watts, Lombard, Ill., assignor to Sealy, Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 281,108, Aug. 16, 1972, abandoned. This application May 16, 1973, Ser. No. 360,957
Int. Cl. A47c *19/00, 4/02*
U.S. Cl. 5—201 7 Claims



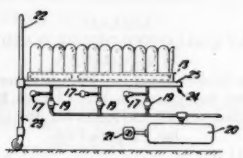
A joint for attaching members which is easily manufactured, has few parts and is readily connected and disconnected and a bed frame utilizing said joint. The bed frame comprises two pairs of first and second members which are attached to one another by said joint. Each of the first members have on each end a first groove and a first tongue. Each of the second members have on the end thereof a second groove and a second tongue. The second tongue of the end member cooperates with the first groove of the first member to prevent movement of the second member along the longitudinal axis of the first member. The first tongue of the first member cooperates with the second groove of the second member to prevent the second member from moving transversely with respect to the first member. Each of the first and second members are attached in the same manner and may therefore by easily assembled and disassembled.

3,822,424
BACK REST
Thomas V. Messer, 747 Olympic Ave., Edmonds, Wash. 98020
Filed Feb. 2, 1973, Ser. No. 329,102
Int. Cl. A47c 21/00; A47g 9/00
U.S. Cl. 5—344 2 Claims



A back rest suitable for use by one or more persons which is designed for easy assembly and portage. A material such as canvas is releasably secured to a pair of frames which are hingedly connected together enabling two persons to use the same rest in back-to-back position. The supporting material is removable from the frames whereby the components may be rolled into a compact package for storage purposes.

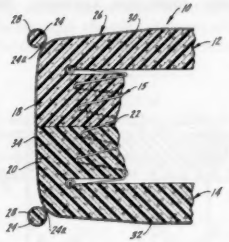
3,822,425
INFLATABLE SUPPORT APPLIANCE
John Tracey Scales, 17 Brockley Ave., Stanmore, England
Filed July 7, 1972, Ser. No. 269,864
Claims priority, application Great Britain, July 9, 1971, 32461/71
Int. Cl. A47c 27/08, 29/00
U.S. Cl. 5—348 R 18 Claims



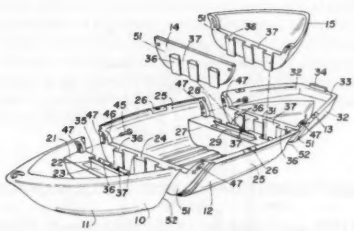
The specification discloses an air mattress consisting of a number of cells each having a surface which supports a user formed from a material which is gas permeable but is non-permeable to liquids and solids. An air supply is provided for inflating the cells to the required pressure.

3,822,426
MATTRESS TOPPER PAD AND BORDER STABILIZER
Richard Mistarz, Chicago, Ill., assignor to Sealy, Incorporated, Chicago, Ill.
Filed Nov. 3, 1972, Ser. No. 303,318
Int. Cl. A47c 23/04, 25/00
U.S. Cl. 5—354 5 Claims

A combined topper pad-border stabilizer means for mattress inner spring units which comprise a single unitary member of resilient material having a mattress topper pad portion, and a border stabilizer portion. The topper pad portion overlies the top or bottom of the coil spring unit. The border stabilizer portion is inserted between at least one convolution of each coil on the outside row of the coil spring unit to stiffen the spring action of the coils. In one embodiment the border stabilizer portion is preformed in the position it will assume in the mattress. In the second embodiment, the border stabilizer portion is formed in such a way that it must be bent 90° to be in the position it will assume in the mattress.



3,822,427
TELESCOPING RIGID BOAT
John L. Ewart, Jr., Prescott, Ariz., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest
Filed Feb. 21, 1973, Ser. No. 334,351
Int. Cl. B63b 7/04
U.S. Cl. 9—2 S 4 Claims



A boat, made of several idependent sections designed to be stacked one inside the other each of which sections join together by means of tongue and groove joints to form the assembled boat. Each independent section of the boat is formed as a watertight shell of molded fiberglass plastic material, with the joint between adjacent assembled sections made along vertical adjoining walls of each section, and with each such wall enclosing the section to a level above the normal waterline.

The tongue and groove joints fastening adjacent boat sections absorb all longitudinal and lateral forces between the joined sections, with shear bolts, joining the adjacent sections, absorbing the vertical forces between the joined sections.

The minimum size boat is formed of a prow section, a mid-section and a stern board, the stern board being attachable to the rear grooves of the mid-section. The unit may be expanded into a boat of longer length by the addition of one or more mid-sections and by the addition of a stern section.

3,822,428

JOINT INSERTS FOR BRIDGING EXPANSION JOINTS

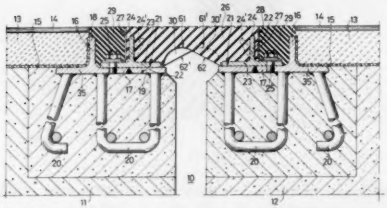
Wilhelm Stog, and Reinhard Springer, both of Waltrop, Germany, assignors to W. Stog KG, Industrie- und Rohrleitungsbau, Waltrop, Germany

Filed Feb. 21, 1973, Ser. No. 334,297

Claims priority, application Germany, July 19, 1971, 2235413

Int. Cl. E01c *11/10*

U.S. Cl. 14—16 12 Claims



A joint or gap insert for bridging expansion gaps in structures, especially bridges, which includes strip means of elastic material having recess means with an arcuate cross section arranged within that region of the strip means which in installed position of said insert will be located within the region of the expansion gap to be bridged while reinforcing means extend into the strip means and are adapted to be firmly connected to the structure, the expansion gap of which is to be bridged.

3,822,429

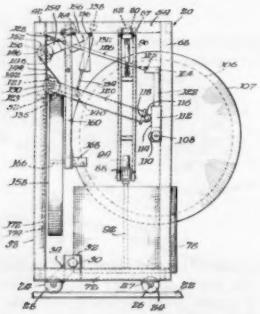
VEHICLE WASHING APPARATUS

William H. Thompson, Mentor, Ohio, assignor to Trans-Clean, Inc., Glenview, Ill.

Filed Oct. 15, 1971, Ser. No. 189,682

Int. Cl. B60s *3/06*

U.S. Cl. 15—21 E 5 Claims



An apparatus for washing a stationary vehicle. A mobile carriage travels along a longitudinal path over the vehicle. The carriage supports opposing vehicle washing brushes rotatable about laterally movable vertical axes to wash the vertical surfaces of the vehicle, an overhead brush rotatable about a horizontal axis and movable in a vertical direction to wash the upper surfaces of the vehicle, and horizontally mounted opposed rotatable brushes for washing the windows and upper vertical surfaces of the vehicle. The vertically mounted brushes are suspended from the carriage by a linkage which has a natural pendular position urging the brushes into scrubbing contact with the vehicle. The overhead brush linkage includes a novel structure wherein counterbalancing weights are located wholly within the lateral limits of the carriage, and wherein the motor driving the overhead brush is mounted so as to eliminate the motor torque reaction when the direction of brush rotation is reversed. A control system comprising sensing elements responsive to the physical dimensions of the vehicle automatically programs the functions of the washing apparatus. A unique feature of the control system provides for stopping rearward movement of the carriage when the rear of the vehicle has been reached by the brushes, regardless of the length of the vehicle. A second unique feature of the control system prevents the carriage from stopping as it reaches the rear of the vehicle until the overhead brush cleans the rear window or upper rear vertical surface of station wagons or vans.

3,822,430

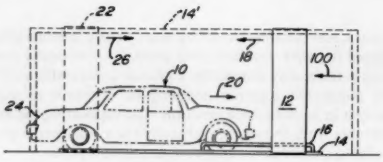
VEHICLE CONVEYING MEANS FOR VEHICLE WASHER

Sherman L. Larson, Cinnaminson, N.J., assignor to Sherman Car Wash Equipment Co., Palmyra, N.J.

Filed Dec. 17, 1971, Ser. No. 209,134

Int. Cl. B60s *3/04*

U.S. Cl. 15—21 R 13 Claims



A vehicle washer utilizing a shortened track for the frame carrying the washing elements such as nozzles and/or brushes. The vehicle is moved in a direction opposite to the direction of movement of the frame as the frame traverses the length of the vehicle. As the frame moves backward along the length of the car, the car is moved forward by a vehicle moving cr carrier means. As the frame moves forward along the length of the vehicle, the vehicle is moved backwards by the vehicle moving or carrier means.

3,822,431

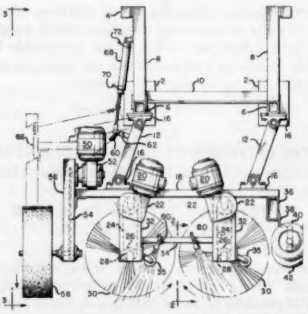
HUBCAP AND LOWER DETAIL WASHER FOR AUTOMOBILES

Russel A. Van Brakel, Harshaw, Wis., assignor to Haverberg Auto Laundry Equipment Co. Inc., Chicago, Ill.

Filed Nov. 22, 1972, Ser. No. 308,671

Int. Cl. B60s *3/06*

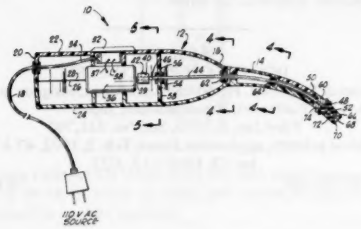
U.S. Cl. 15—21 D 5 Claims



A mechanism for washing the hubcaps and lower detail of an automobile including a horizontally disposed, pivotally

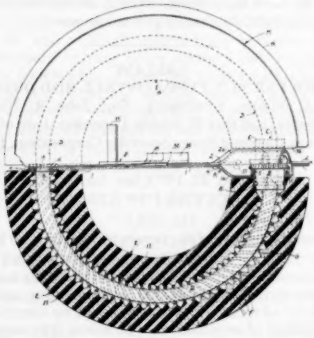
mounted framework biased toward the path of an automobile passing through an automatic automobile washing apparatus. The framework supports a pair of horizontally disposed, driven brushes which are adapted to contact and wash the lower detail of the automobile as well as the hubcaps. Similarly mounted upon the framework is a vertically disposed, driven brush which is included to assure that the hubcap is completely cleaned.

3,822,432
DENTAL HYGIENE APPLIANCE
James A. Skinner, 730 Asp, Norman, Okla. 73069
Filed July 7, 1971, Ser. No. 160,427
Int. Cl. A46b *13/02*
U.S. Cl. 15—23 **10 Claims**



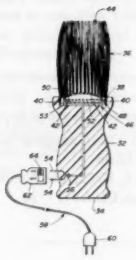
A dental hygiene appliance having a housing with a curved tubular extension formed on one end thereof. An electric motor is carried within the housing and is drivably connected to one end of a flexible shaft disposed within the tubular extension. The opposite end of the flexible shaft extends beyond the end of the tubular extension and is removably drivably secured to a rotary tooth cleaning tool. In one form of the invention, the rotary tooth cleaning tool comprises a tooth polishing cup formed of elastomeric material. In another form of the invention the rotary tooth cleaning tool comprises a brush. One or more flexible shaft bearings are disposed within the tubular extension intermediate the electric motor and the rotary tooth cleaning tool.

3,822,433
ELECTRIC MOP
Marion Krekler, 2422 N. French St., Santa Ana, Calif. 92706
Filed Mar. 12, 1973, Ser. No. 340,228
Int. Cl. A47l *11/282*
U.S. Cl. 15—98 **12 Claims**



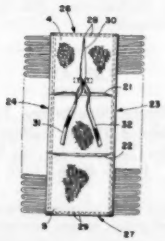
An electric mop that makes use of a toroidal cleaning element that is rotatably mounted on a ring-shaped axle with the electric motor rotating the toroidal cleaning element or mop on this circular axle. A novel mop wringing plate rests lightly on the top of the toroidal mop when the plate is in normal position and acts as a shield to protect the operator from any flying liquid that might accidentally be thrown off by the toroidal cleaning element as it is rotated about the ring-shaped axle. In addition, novel means is provided for forcing the plate down upon the toroidal cleaning element while it is rotating for wringing the cleaning element or mop of its dirty water.

3,822,434
SHAVING BRUSH HAVING HEATING MEANS FOR LATHER
Edwin L. Mahoney, 2843 W. Brooklyn, Dallas, Tex. 75211
Filed Apr. 3, 1972, Ser. No. 240,421
Int. Cl. A46b *11/08*
U.S. Cl. 15—160 **6 Claims**



A shaving brush comprises a handle and bristles extending from the handle in an annular array to provide a cylindrical barrel for receiving shaving lather directly from an aerosol container. The shaving lather receiving barrel extends full depth and is therefore adapted to receive a relatively large quantity of lather, and the bristles are arranged in tufts to provide apertures at the lower end of the barrel adjacent the handle which permit thorough rinsing of the brush following each use. In one embodiment of the invention an electric heating apparatus is mounted in the handle and extends into the shaving lather receiving barrel for actuation to heat shaving lather deposited therein.

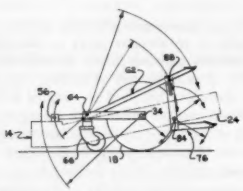
3,822,435
DISPOSABLE DUST MOP AND METHOD OF MAKING SAME
Theron V. Moss, P.O. Box 234, Cleveland, Tenn. 37311
Filed Dec. 22, 1972, Ser. No. 317,538
Int. Cl. A47l *13/253*
U.S. Cl. 15—229 BP **13 Claims**



A disposable dust mop and method of making same comprising the steps of stitching one or more intermediate rows of

yarn to one side of a piece of fabric intermediate one side edge of the fabric and the longitudinal middle thereof, folding the fabric at the middle back against itself along the entire length thereof to provide a fabric support member two layers thick, then stitching an outer row of yarn adjacent the fold with the stitching extending through both layers of fabric, and then stitching another outer row of yarn to the fabric adjacent the two side edges with the stitching also extending through both layers of fabric. Either prior to or during the stitching of the outer row of yarn adjacent the side edges of the fabric, the fabric is desirably slit along the side edge of the fabric which comprises the back layer of the support member at longitudinally spaced apart points, after which the outer row of yarn adjacent the side edges is stitched to the fabric over the slits. The slits extend sufficiently inwardly beyond the stitching for the adjacent outer row of yarn to permit a scissors to be inserted into the slits for cutting the slits all the way across the back layer of fabric to the outer row of stitching adjacent the fold thus providing end pockets between the two layers of fabric for attachment to a mop holder. Finally, the ends of the fabric are stitched together with one or more rows of stitching extending through both layers of fabric and also through the ends of the rows of yarn to prevent unraveling.

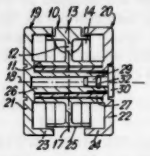
3,822,436
VACUUM CLEANER WITH HEIGHT ADJUSTMENT
Jack L. Burgoon, Toledo, Ohio, assignor to The Scott & Fetzer Company, Lakewood, Ohio
Filed Nov. 16, 1972, Ser. No. 307,001
Int. Cl. A47l *5/34*
U.S. Cl. 15—354 **9 Claims**



A large vacuum cleaner with height adjustment mechanism for the vacuum nozzle is provided. The adjustment mechanism includes two foot-operated levers, one effective to change the height of the nozzle in a direction away from the surface to be cleaned, and one to change the height of the nozzle in a direction toward the surface by releasing the first lever from a predetermined position. The mechanism is easily operated from the rear by an operator manipulating the vacuum cleaner by its handle. The mechanism is also simple, maintenance free, reliable, and inexpensive.

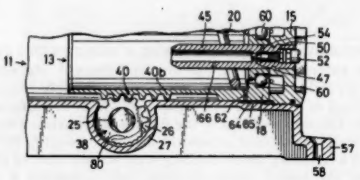
3,822,437
CASTORS
Stafford Thomas Screen, Stourbridge, England, assignor to British Castors Limited, Tipton, Stafford, England
Filed Nov. 24, 1972, Ser. No. 308,937
Int. Cl. B60b *33/00*
U.S. Cl. 16—45 **11 Claims**

In a castor having a body adapted to be mounted on an article of furniture and roller means mounted on the body for rotation relative thereto about a rolling axis, the roller means has mutually opposed disc portions which extend transversely of the rolling axis and a peripheral wall portion which is supported by the disc portions for engagement with a floor surface. The roller means comprises two wheel components which are connected together and each of which includes one



of said disc portions. The wheel components include respective interfitting integral formations which locate one wheel component relative to the other.

3,822,438
DOOR CLOSER MECHANISM
Yukimasa Takenaka, Hiroshima-ken, Japan, assignor to Ryobi Co., Ltd., Fuchu-shi, Hiroshima-ken, Japan
Filed Jan. 8, 1973, Ser. No. 321,702
Claims priority, application Japan, Feb. 2, 1972, 47-13891
Int. Cl. E05f *3/12, 3/22*
U.S. Cl. 16—62 **8 Claims**

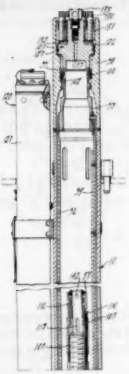


In the present door checking mechanism, a piston reciprocates within a cylinder. A pinion shaft carries a pinion which is normally held in meshing engagement with a rack axially formed on the outer surface of the piston. The pinion is partly toothed so that further rotation of the pinion shaft after the pinion has been disengaged from the rack results in a frictional engagement between the end tooth of the rack and the toothless portion of the pinion. In this condition, the door is firmly held until an external force is applied thereto. Another embodiment includes a pinion having a cut-away portion which, in the door fully open position, is held in surface contact with a corresponding portion of the rack to thereby prevent the door from being violently hit against the wall behind, for example, due to a large wind pressure.

3,822,439
ROLLER NUT-TYPE CONTROL ROD DRIVE
Robert A. Wallin, Lynchburg, Va.; John R. Null, Canal Winchester, and Don W. Smith, Lancaster, both of Ohio, assignors to Diamond Power Specialty Corporation, Lancaster, Ohio
Filed Feb. 22, 1973, Ser. No. 334,851
Int. Cl. F16h *1/18;* **G21c** *7/08*
U.S. Cl. 74—424.8 R **16 Claims**

A control rod drive of the type wherein the load is actuated by a non-rotatable screwshaft driven axially within a sealed tubular enclosure includes a spinning nut assembly consisting of roller nuts mounted on pivoted segment arms and movable into and out of mesh with the screwshaft by energization and deenergization of an induction-type motor. The segment arms form a portion of the rotor so that when the field of stator rotates the roller nuts planetate to drive the shaft. A combined support and convection-controlling housing structure for the

mechanism is adapted to be attached to the cover of a reactor vessel and includes an upwardly extending torque-taking piston-carrying section connected to the screwshaft and a



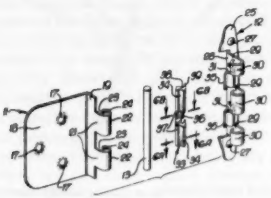
snubbing cylinder for controlling the rate of descent and absorbing shock in event of scan, and means for parking the screwshaft in a raised position.

3,822,440

SPRINGLESS SELF-LATCHING HINGE

Benjamin H. Stansbury, Jr., Beverly Hills, and Frank A. Holmes, Buena Park, both of Calif., assignors to Jaybee Manufacturing Corporation, Los Angeles, Calif.

Filed Apr. 12, 1972, Ser. No. 243,191
Int. Cl. E05d *11/08*
U.S. Cl. 16—142 **10 Claims**



A springless self-latching hinge includes a pair of hinge leaves pivotally connected by a hinge pin. One leaf has a hinge knuckle the end of which incompletely encircles the pin to form a recessed bearing sleeve having a cam engaging edge. The other member has at least one hinge knuckle terminating at a hinge pin encircling bearing sleeve and at least one laterally extending, resilient spring leaf cooperating with a cam block disposed between the leaf and the recessed bearing sleeve to exert a force on the cam engaging edge for releaseably maintaining said hinge closed.

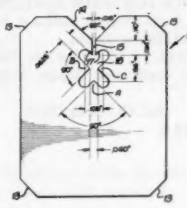
3,822,441

PLASTIC CLIP FOR CLOSING FLEXIBLE PLASTIC BAG

Floyd G. Paxton, P.O. Box 2098, Yakima, Wash. 98902

Continuation of Ser. No. 131,226, April 5, 1971, abandoned.
This application Nov. 30, 1972, Ser. No. 310,705
Int. Cl. B65d *77/10*
U.S. Cl. 24—30.5 S **4 Claims**

A clip about 1 inch square of flat springy plastic, such as 0.032 inch guage polystyrene, having an internal bag neck confining aperture, access to which is provided by a narrow opening in an edge of the clip dividing the clip on opposite sides of said opening into a pair of flexible jaws. The opening edges flare outwardly to guide the bunched bag neck into the inner narrow part of the opening. A pointed tongue formed integral with the clip extends into said aperture to engage the



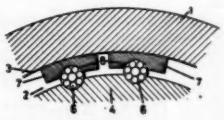
bag neck and resist slippage of said bag neck through said aperture. A multiple of said tongues may be provided, in which case a pair of tongues may extend into said aperture into a juxtaposed relationship on a transverse axis. A third tongue may be provided pointed toward and co-axially aligned with said narrow opening.

3,822,442

METHOD OF ANCHORING A BUNDLE OF REINFORCING WIRES OR STRANDS FOR PRE-STRESSED CONCRETE, AND ANCHORING CONSTRUCTION

Jan Frederik Herbschleb, Leidschendam; Albert Komijn, Rijswijk Z.-H., and Hans Egbert Westenberg, The Hague, all of Netherlands, assignors to I.B.I.S. Nederland N.V., Rijswijk, Netherlands

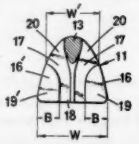
Filed Dec. 21, 1971, Ser. No. 210,329
Claims priority, application Netherlands, Dec. 24, 1970, 7018796
Int. Cl. F16g *11/00*
U.S. Cl. 24—122.6 **6 Claims**



Anchorage of a bundle of reinforcing wires or strands for pre-stressed concrete in a tapered throughbore of an anchoring block, in which said wires or strands are clamped relatively to the wall of the throughbore by driving a wedge into said bore, whereafter as the bundle is subsequently caused to assume its final pre-stressed condition, the bundle pulls itself with the wedge into a more tightly wedged position in the bore, and wherein, before the wedge is driven in sliding pieces are interposed between the wires or strands and the wall of the throughbore, said sliding pieces being formed so that as the bundle pulls itself tightly into the bore, said sliding pieces ex-

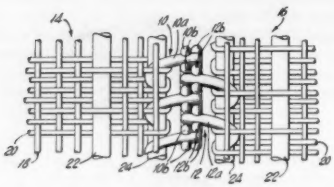
clusively move relatively to said wall, without moving relatively to the wires or strands. The sliding pieces preferably have a prismatic shape.

3,822,443
SLIDER FOR SLIDE FASTENERS
Hiroshi Yoshida, Uozu, Japan, assignor to Yoshida Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sept. 18, 1973, Ser. No. 398,392
Claims priority, application Japan, Sept. 19, 1972, 47-109126[U]
Int. Cl. A44b 19/26
U.S. Cl. 24—205.15 R 1 Claim



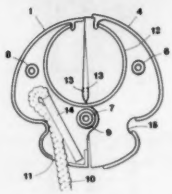
A slider provided with greater flange surfaces towards its exit end for guiding and holding the fastener stringers stably thereon during the assembling of the fastener chain through the slider, so as to prevent the fastener elements from becoming displaced at the exit end and caught in the guide channel of the slider.

3,822,444
CLOSURE ARRANGEMENT FOR COIL FILAMENT ZIPPERS
Max F. Johns, Scotch Plains, N.J., assignor to General Zipper Corporation, Long Island City, N.Y.
Filed Jan. 3, 1973, Ser. No. 320,779
Int. Cl. A44b 19/12
U.S. Cl. 24—205.13 C 3 Claims



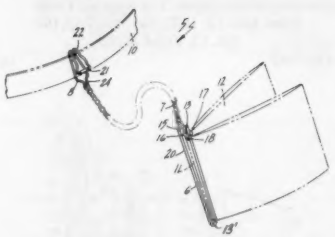
Slide fastener filaments in the form of helical coils are provided with projecting portions on each convolution. The projecting portions on one filament interlock with the projecting portions of a cooperating filament. A plurality of projecting portions are provided on each coil, so that the coils are prevented from becoming separated when twisting forces or a side load is applied to the filaments.

3,822,445
DRAWSTRING WITH CLIPS
Chung Liao Feng, 16 Seven Springs Rd., Radnor, Pa. 19087
Filed Mar. 26, 1973, Ser. No. 345,087
Int. Cl. A41f 1/00; A44b 21/00
U.S. Cl. 24—266 2 Claims



The invention relates to drawstrings equipped with spring clips. The function of the clips is to eliminate the need of tying knots by clamping the drawstring at the right length.

3,822,446
LOSS-PREVENTION WALLET CLAMP AND CHAIN DEVICE
Bernard Silverstein, 9-34 130th St., College Point, N.Y. 11356
Filed Nov. 16, 1973, Ser. No. 416,414
Int. Cl. A45f 5/02; A45c 13/20
U.S. Cl. 24—3 H 8 Claims



In a preferred embodiment, a wallet safety clamp and chain and belt latch on the end of the chain for slidably clamping over the belt edge of a man, the chain being of a link-type which does not therefore knot during use to thereby weaken the chain, and the chain being linked to a circular end of the head of the clamp in which the head is a bent rigid but resilient steel wire, with one end of the head-forming wire extending laterally a very minor distance and looping back in a reverse direction to form a semicircular hook-portion as the head catch, and the other portion of wire extending from the head extending linearly slightly greater in length than a typical wallet's width and then bending sharply in a rounded bend to form a reverse-direction leg which is latchable into the semicircular hook-portion which extends traversely to the direction of the linearly extending reverse-direction leg, such that there is formed a head extending in a space-saving and non-protruding direction the same as the plane in which the semicircular hook-portion extends, and with the hook-portion being formed in close relationship to the back-body leg so as to not be uncomfortably wide and bulky in latch nature when the clamp is buckled around a wallet, and with the back-body leg continuing directly without curves into the head portion thereby avoiding unnecessary protrusions of tumor portions which might catch on a pocket or which might in time wear-away a pocket undesirably in the placing of the wallet into a

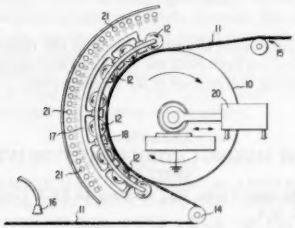
pocket and removing the same therefrom, whereby a functional wallet clamp is provided obtaining both security against loss of the wallet accidentally such as when sitting in an easy-chair or automobile seat or the like, while being attractive in apperance and easily latchable on and removable from a wallet as desired by virtue of the above structural relationships.

3,822,447

METHOD AND APPARATUS FOR ELECTRIFYING PILE FABRICS

Daniel Frishman, 14 Castle Heights Rd., Andover, Mass. 01810

Filed July 24, 1972, Ser. No. 274,636
Int. Cl. D06c *29/00*
U.S. Cl. 26—2 E **7 Claims**



The present disclosure is directed to a machine and method in which a pile fabric carried on the surface of a large rotating drum is submitted to the electrifying action of several rotating cylinders placed in a planetary arrangement around the large cloth-carrying cylinder. The rotation of the planetary cylinders is varied (some clockwise, others counter-clockwise) so that in one pass of the fabric through the electrifying machine some of the electrifying cylinders throw the pile fibers forward (in the direction of movement of the fabric) while other electrifying cylinders throw the pile fibers in the opposite direction. In order to provide lateral oscillatory motion to the fibers, each planetary cylinder has a spiral groove on its surface and the direction of this spiral alternates for successive planetary cylinders. Preferably, each planetary cylinder has, on its surface, two (or more) spiral grooves and the two grooves are "wound" in opposite directions. When the pitch of each (oppositely wound) spiral on a cylinder is great enough, the spirals will cross each other at one or more points. (Cross-over points can cause streaks on the surface of the pile fabric.) In this invention the spirals are arranged so that the cross-over points occur at different positions along the length of each planetary cylinder on the electrifying machine and the last one to three cylinders are designed to have no cross-over points.

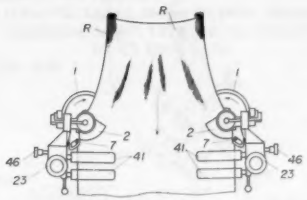
3,822,448

APPARATUS FOR SPREADING AND GUIDING FABRIC WIDTHWISE

Hideyuki Cho, No. 30, 6-chome, Zuiko-dori, Higashiyodogawa-ku, Japan

Filed Jan. 12, 1972, Ser. No. 217,337
Claims priority, application Japan, Nov. 16, 1971, 46/107219
Int. Cl. D06c *3/06*
U.S. Cl. 26—67 **3 Claims**

An apparatus includes a pair of rotary discs to be disposed at the opposite side edges of a travelling fabric and a pair of push plates adapted to be moved toward or away from the rotary discs in opposing relation thereto for spreading the travelling fabric widthwise at its opposite selvages. At least two parallel guide rollers are positioned ahead of each of the



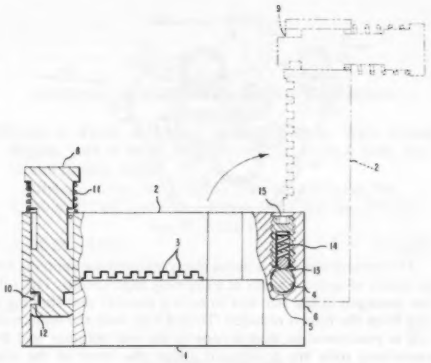
spreading units with respect to the direction of travel of the fabric at a variable angle with respect to the fabric so as to guide the travelling fabric at each selvage.

3,822,449

HINGED CAP JET

Burness Carl Dick, Nashville, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 16, 1972, Ser. No. 307,006
Int. Cl. D02g *1/16*
U.S. Cl. 28—1.4 **2 Claims**



A hinge connecting a cap to a body member of a yarn treating jet is modified with a biasing means for exerting a force against the hinge pin normal to the mating surfaces of the cap and body member of the jet.

3,822,450

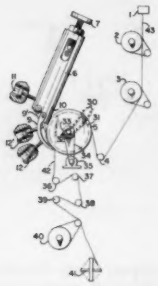
APPARATUS FOR PRODUCING CRIMPED FILAMENTS FROM SYNTHETIC POLYMERS

Konrad Ellegast, Leichlingen; Robert Schnegg, Dormagen; Karl August Essig, Marl, and Horst Wieden, Dormagen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation-in-part of Ser. No. 29,045, April 6, 1970, abandoned. This application Dec. 23, 1971, Ser. No. 211,565
Claims priority, application Germany, Apr. 24, 1969, 1920760
Int. Cl. D02q *1/20, 1/10, 1/12*
U.S. Cl. 28—1.3 **3 Claims**

Apparatus is disclosed for stretching and crimping filaments

or yarns from synthetic polymers. The crimping device includes a heated, driven roller with a pressure plate and stow-

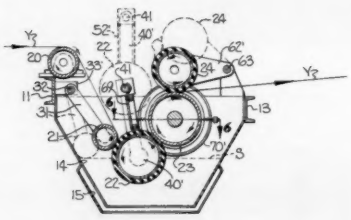


ing or packing flaps mounted about the circumference of the roller to stuffer crimp the filaments or yarns.

3,822,451
SIZE BOX

Ira L. Griffin, Jr., Charlotte, N.C., assignor to Ira L. Griffin & Sons, Inc., Charlotte, N.C.

Filed Dec. 14, 1972, Ser. No. 314,990
Int. Cl. D06c *29/00*
U.S. Cl. 28—28 **10 Claims**



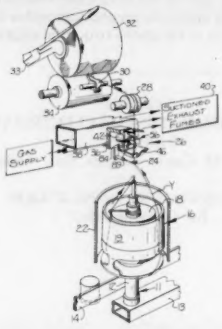
The present size box is particularly adapted for applying size to textile strands or yarns at extremely high speeds. The rolls are arranged in the size box in such a manner that slinging of size from the rolls is reduced. To this end, only the immersion roll is positioned so that it runs in the size solution and the remaining rolls are positioned above the level of the size. Suitable guards are provided to restrict the amount of slinging of size from the rolls during high speed operation. The immersion roll is supported for vertical movement between a lowered operative position in the size solution and a raised inoperative position above the upper level of the size tank.

3,822,452
GAS SINGEING APPARATUS FOR TEXTILE YARN PROCESSING MACHINE

Klaus Nimtz, Krefeld, Germany, assignor to Palitex Project Company GmbH, Krefeld, Germany

Filed Nov. 17, 1972, Ser. No. 307,627
Int. Cl. D02j *3/16*
U.S. Cl. 28—63 **6 Claims**

A gas singeing apparatus for use with textile yarn processing machines such as a twister, spinning frame or the like, and which includes a singeing plate forming the front wall of a combustion chamber and having a cylindrical wall portion for receiving a running yarn end therethrough. A gas burner nozzle is positioned within the combustion chamber to heat the singeing plate to thereby singe off any protruding fibers on the yarn passing through the cylindrical wall portion. Suction means is provided for drawing off the products of combustion

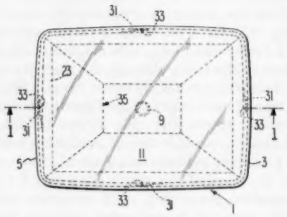


within the combustion chamber as well as the residue of the singeing operation from both the entry end and discharge end of the cylindrical wall portion of the singeing plate.

3,822,453
METHOD OF MAKING CATHODE RAY TUBE INTERNAL SHIELDS

Terry M. Shrader, Leola, Pa., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 95,779, Dec. 7, 1970, abandoned. This application Nov. 7, 1972, Ser. No. 304,587
Int. Cl. H01j *9/00*
U.S. Cl. 29—25.14 **2 Claims**



An internal magnetic shield of generally truncated pyramidal shape conforming generally to the inner wall of the funnel of a rectangular shadow mask type color picture tube is made up of four pre-annealed trapezoidal pieces of magnetic sheet metal assembled and attached together by overlapping flanges integral with the non-parallel sides of the pieces. The larger end of the shield is attached to the shadow mask frame by integral flanges on the long sides of the trapezoidal pieces. The sheet metal of the shield is annealed either before or after being formed into the trapezoidal pieces, but before assembly and attachment of the pieces together.

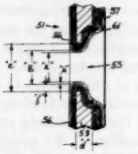
3,822,454
METHOD OF FABRICATING A COLOR CATHODE RAY TUBE

Kenneth Speigel, Seneca Falls, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Nov. 30, 1972, Ser. No. 310,707
Int. Cl. H01j *9/18*
U.S. Cl. 29—25.13 **8 Claims**

A method for making a color cathode ray tube utilizing a screen-related apertured mask member wherein the apertures

are temporarily reduced in size by an applied coating that is absorbent of actinic radiant energy. The coated mask is used to photo expose a windowed-web, defined by opaque interstices, on the viewing panel of the tube; whereupon, the coated mask is again employed to photo expose a superimposed array of phosphor dots to fully cover each of the window areas. After formation of the screen structure the tempo-



rary coating is removed from the mask by treating with a dissolving solution which completely de-coats the mask thereby restoring the apertures to their initial dimensioning without harming the underlying mask material per se. In the mask-screen assembly thus fabricated, the mask apertures in the completed tube are of a size larger than the associated phosphor-filled window areas of the screen.

3,822,455

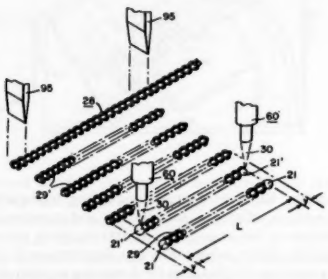
METHOD OF MANUFACTURING BEADED FILAMENT COILS FOR ELECTRIC LAMPS AND SIMILAR DEVICES

James Petro, Little Falls, and Clair M. Rively, Old Bridge, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 163,651, July 19, 1971, which is a division of Ser. No. 792,988, Jan. 22, 1969, abandoned, Continuation of Ser. No. 317,880, Dec. 22, 1972, Pat. No. 3,778,664. This application May 30, 1973, Ser. No. 365,369

Int. Cl. H01j *9/00*

U.S. Cl. 29—25.18 **10 Claims**



The tangling of helically-coiled wire articles during bulk handling and shipment is prevented by providing integral modules or beads of fused metal at each end of the articles which enclose the severed ends of the wire. In the case of tungsten wire coils that are designed for use in electric lamps and similar devices and are wound on iron mandrels, the fused beads are composed of tungsten-iron alloy and formed in situ during coil manufacture by melting the ends of the mandrel with a concentrated heat source such as a focused laser beam. The tungsten-iron alloy beads remain on the end turns of the coil during the subsequent mandrel-dissolving operation, are ductile and are formed without embrittling the tungsten wire. Various methods for manufacturing such beaded-end coils on a mass production basis using a laser are disclosed.

3,822,456

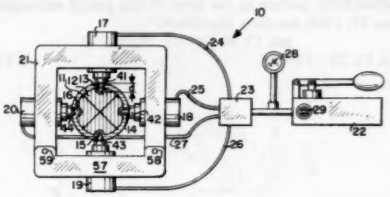
STRAND CONNECTING METHOD

Rudolph E. Petruzzi, Bronxville, N.Y., assignor to The Anaconda Company, New York, N.Y.

Division of Ser. No. 23,611, March 30, 1970, abandoned. This application June 7, 1972, Ser. No. 260,699

Int. Cl. H05k *43/00*

U.S. Cl. 29—628 **2 Claims**



In a hydraulic press for connecting cable strands the penetration of the rams is positively determined and equalized by spacers that attach to the ram guides and limit the hydraulic piston stroke. In this method of using a ram press sufficient pressure is always applied to rams to obtain preselected equal depth of penetration.

3,822,457

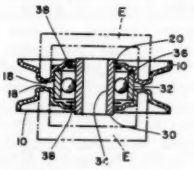
METHOD OF MAKING ROTATABLE MEMBER ASSEMBLY

Charles C. Frost, Kentwood, and Siegfried K. Weis, Grand Rapids, both of Mich., assignors to C. L. Frost & Sons, Inc., Grand Rapids, Mich.

Division of Ser. No. 199,983, Nov. 18, 1971, Pat. No. 3,789,683. This application July 9, 1973, Ser. No. 377,443

Int. Cl. B21k *1/42*

U.S. Cl. 29—159 R **3 Claims**



The present disclosure relates to a rotatable member assembly such as a pulley wheel, a sheave or drive pulley or the like fabricated from a pair of metal disks stamped from sheet metal stock and welded together in a novel manner. The disk members are each provided with an outer peripheral rim, a web portion having an annular laterally extending weld projection formed thereon, and a central hub-engaging section. To assemble the member, a bearing, bushing, or hub is positioned in the central hub-engaging section and the disks are placed together and subjected to heat and pressure at the web portion so that the weld projection of one of the disks fuses with the weld projection of the other disk to form an integral assembly.

3,822,458
METHOD OF MAKING WHEELS

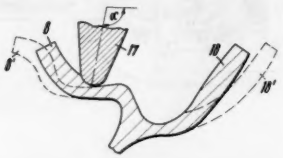
Friedrich Wilhelm Schulte; Manfred Diels, both of Meinerzhagen, Germany, and Wilhelm Rosenkranz, deceased, late of Meinerzhagen, Germany (by Barbara Rosenkranz, heir), assignors to Otto Fuchs, Meinerzhagen, Germany

Division of Ser. No. 11,233, Feb. 13, 1970, Pat. No. 3,672,021. This application June 7, 1972, Ser. No. 260,388

Claims priority, application Germany, Feb. 20, 1969, 1908465The portion of the term of this patent subsequent to June 27, 1989, has been disclaimed.

Int. Cl. B21b *1/02;* **B21k** *1/32*

U.S. Cl. 29—159.01 **5 Claims**



Wheels, particularly for automotive vehicles, are made by first forming a disk-shaped blank, forging the same into a semi-finished wheel having a hub and a wheel disk surrounding the hub and having a peripheral rim provided with a cylindrical circumferential edge face, and then mounting the semi-finished wheel in a machine. The edge face is thereupon engaged with one roller and split under application of pressure in direction inwardly of the edge face and towards the hub to obtain two unfinished flanges. The unfinished flanges are rollingly deformed with two rollers in opposite directions axially of the hub and to the desired configuration to thereby obtain two finished wheel flanges.

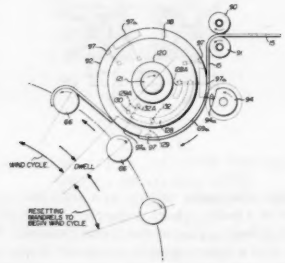
3,822,459
MACHINE FOR PRODUCING A PLASTIC-COVERED GLASS CONTAINER

Stephen W. Amberg, St. James; Thomas E. Doherty, Setauket, both of N.Y., and Clarence A. Heyne, Sun City, Ariz., assignors to Owens-Illinois Inc., Toledo, Ohio

Division of Ser. No. 209,751, Dec. 20, 1971. This application July 10, 1973, Ser. No. 378,002

Int. Cl. B23p *19/04*

U.S. Cl. 29—208 B **12 Claims**



The disclosure relates to a machine for making a plastic covering on a rigid base article which in the illustrated form comprises a glass bottle and a conforming shrunken plastic covering thereon. The plastic is fed in oriented sheet form to the turret apparatus, cut into lengths and wrapped and seamed on successive mandrels as sleeves. Bottles are simultaneously processed to preheat condition and indexed over the sleeves, the latter telescopically assembled on the rigid base article, i.e., the bottle, and the combination carried to a heat tunnel. The plastic sleeve shrinks into snug surface fit on the adjacent surface portion of the rigid base article.

The bottle is preheated in one of two embodiments by: (1) a preheat tunnel on the machine which raises the bottles from room temperature to about 220° F, or (2) the preheat is carried over as latent heat in the glass bottle from the annealing lehr, a part of the bottle manufacturing process.

The machine includes novel subassemblies comprised of (1) a bottle chuck and loading station for assuring proper loading of the bottles on the machine, (2) bottle handling, (3) plastic strip handling and feed mechanism for placing oriented cut lengths onto mandrels of the turret, (4) the turret for making seamed sleeves in succession and feeding them onto registered bottles carried by the bottle handling apparatus, and (5) unloading device for transfer of the covered bottles to a conveyor and with said transfer smoothening the bottom surface of the covering on the bottle.

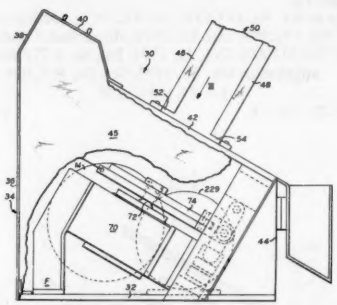
3,822,460
APPARATUS FOR AUTOMATICALLY MOUNTING TRANSPARENCIES IN SLIDEMOUNTS

Richard A. Rinehuls, Port Crane, N.Y., assignor to Seary Manufacturing Co., Endicott, N.Y.

Filed Sept. 21, 1972, Ser. No. 291,030

Int. Cl. B23q *7/10*

U.S. Cl. 29—211 D **17 Claims**



Apparatus for automatically mounting transparencies in slidemounts in which the slidemounts and transparencies are simultaneously fed in opposite directions along the same axis to a loading station where they are superimposed, and under which a carriage reciprocates for actuating a cutter, for elevating pusher dogs to engage and push the superimposed transparency and mount to a press, and for subsequently dropping the pusher dogs so that the carriage can move back under the loading station without interference with the newly disposed slidemount and transparency.

3,822,461
DISPOSABLE LANCET

Sven-Erik Malmstrom, Reftele, Sweden, assignor to Swedish Hospital Supply SHSAB, Malondal, Sweden

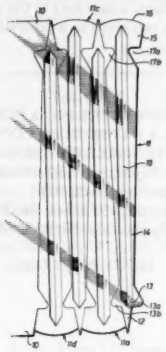
Division of Ser. No. 182,862, Sept. 22, 1971. This application June 22, 1973, Ser. No. 372,487

Int. Cl. B21d *28/06*

U.S. Cl. 29—415 **4 Claims**

A disposable lancet used for piercing the tissue of a finger to obtain blood specimens. The lancet is designed to contain

minimum material to achieve low material costs which still have the strength and rigidity to be completely functional. The

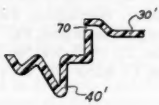


lancet design permits multiple lancets to be punched from a strip of sheet steel to obtain economy in the manufacturing operation.

3,822,462
METHOD OF CONSTRUCTING DOOR AND WINDOW STRUCTURES

Wingfield L. Chubb, Faircroft Engineering, Inc., Beverly Shores, Ind. 46304

Filed Nov. 8, 1972, Ser. No. 304,721
Int. Cl. B23p *17/00*
U.S. Cl. 29—416 **4 Claims**



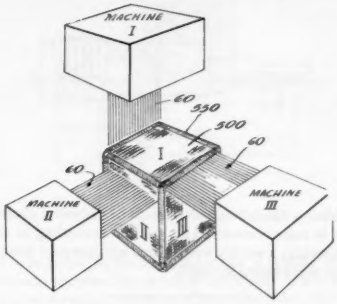
A door and window structure in which a plastic frame is adapted to be secured to the opening structure of a recreational vehicle, mobile home or the like, and a panel of plastic material, severed from the frame, forms the door or window. The method includes forming, from a single sheet or panel, an integral frame and door or window and severing the door or window pane from the frame, the cut preferably being made in the edgewise direction from a joint between the frame and panel so that the panel overlaps the frame when the panel and frame are assembled in place.

3,822,463
METHOD FOR PRODUCING A THREE DIMENSIONAL LATTICE

Homer C. Amos, Palm Springs, Calif., assignor to Brunswick Corporation, Skokie, Ill.

Filed July 18, 1972, Ser. No. 272,736
Int. Cl. B23p *19/04*
U.S. Cl. 29—433 **1 Claim**

A machine for making a three dimensional lattice array of strands within a grid framework. The strand lattice can be utilized as a reinforcement for other materials. The method of

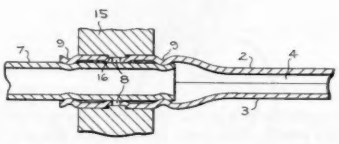


making the three dimensional lattice involves sewing strands in three directions within a grid framework.

3,822,464
METHOD OF JOINING A TUBE TO A ROLL FORGED SHEET

William F. Hester, and Frank A. Schumacher, both of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Mar. 26, 1973, Ser. No. 345,003
Int. Cl. B23p *3/00, 19/04*
U.S. Cl. 29—460 **4 Claims**



A method of joining a metal tube to a member comprising roll forged sheets formed to provide a tubular passageway which comprises punching a hole in at least one of the sheets in communication with the passage, inserting a tubular member into the passageway sized to provide a radial clearance therebetween, crimping the sheets into engagement with the tube on opposite sides of the hole and circumferentially of the tube, introducing a heat-curable resin adhesive through the hole to substantially fill the space between the crimped areas, reducing the area of the sheet including the hole into hole-sealing engagement with the tube and thereafter curing the adhesive.

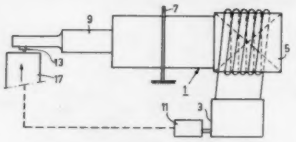
3,822,465
METHOD FOR THE ULTRASONIC WELDING OF WIRES ON THE METAL SURFACE OF A SUPPORT

Martinus Petrus Carolus Gerardus Maria Frankort; Nico Arie De Gier; Aloysius Petrus Albertus Johannes Hulst, and Martijn De Jong, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 10, 1971, Ser. No. 206,715
Claims priority, application Netherlands, Dec. 17, 1970, 7018377
Int. Cl. B23k *21/00*
U.S. Cl. 29—470.1 **8 Claims**

A method of and a device for the ultrasonic welding of wires comprising a non-metal insulating layer on the metal surface

of a support by means of a welding tip which is made to vibrate in a direction parallel to the longitudinal direction of a wire to be welded; according to a previously programmed welding cycle, the insulating layer is first removed locally and the wire is



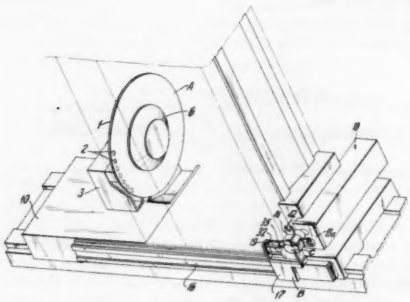
then welded; a preceding mechanical or chemical cleaning of the wires is not necessary. The method according to the disclosure provides a welded joint which has compact dimensions and a high mechanical strength.

3,822,466

AUTOMATIC TOOL EXCHANGER FOR LARGE-SCALED FLOOR-TYPE HORIZONTAL BORING MACHINES

Akio Noguchi, and Shinsuke Tsuda, both of Hiroshima, Japan, assignors to Mitsubishi Jukogya Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 14, 1972, Ser. No. 234,545
Int. Cl. B23q *3/157*
U.S. Cl. 29—568 **7 Claims**



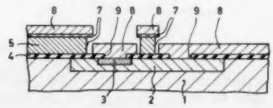
A floor-mounted horizontal boring machine includes an elongated horizontal base, a slide mounted on the base for reciprocation longitudinally thereof, an upright column fixedly mounted on the slide adjacent one end thereof, and a main spindle head mounted on a front end wall of the column for vertical and lateral adjustment relative thereto. An automatic tool exchanging apparatus includes a tool magazine fixedly mounted on the slide adjacent a rear end wall of the column so that the column is interposed horizontally between the main spindle head and the magazine. A carriage is mounted on rails on a horizontally extending vertical front surface of the slide for horizontal reciprocation past a sidewall of the column between the main spindle head and the tool magazine, and an automatic tool exchanger is mounted on the carriage for tool exchange in cooperation with the main spindle head, in one limit position of the carriage, and with the tool magazine, in the other limit position of the carriage. The carriage is normally retracted to a position adjacent the magazine where the tool exchanger positions a used tool in the magazine and extracts a new tool from the magazine. When a tape control or the like calls for a tool exchange, the carriage is moved to an extended position adjacent the main spindle and the automatic tool exchanger extracts a tool from the main spindle and mounts a new tool in the main spindle, after which the carriage is retracted to a position adjacent the tool magazine.

3,822,467

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE HAVING A PATTERN OF CONDUCTORS AND DEVICE MANUFACTURED BY USING SAID METHOD

Bohuslav Symersky, Nijmegen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 25, 1973, Ser. No. 354,504
Claims priority, application Netherlands, Apr. 28, 1972, 7205767
Int. Cl. B01j *17/00*
U.S. Cl. 29—579 **13 Claims**



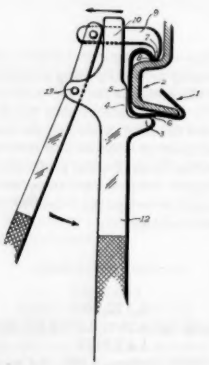
A method of providing patterns of conductors on semiconductor device, in particular patterns which consist of layers of different materials. A metal auxiliary layer is used in which a negative reproduction of the desired pattern of conductors is provided. After providing the conductive layers necessary for the pattern, the excessive parts thereof are removed by the selective dissolution of the metal auxiliary layer. The method is of particular importance which patterns of conductors are used having one or more materials which cannot be etched or can be etched with difficulty only.

3,822,468

TOOL FOR REMOVAL OF DETERRENT SPRING CLIP

Hellmuth F. A. Mueller, Warrington, Pa., assignor to Merit Metal Products Corp., Warrington, Pa.

Filed Mar. 22, 1972, Ser. No. 236,804
Int. Cl. B25b *7/00, 27/14*
U.S. Cl. 29—268 **5 Claims**



Since current trends in crime against property have made additional and improved means necessary for reinforcing security of boxcar doors to prevent theft and pilferage, a

deterrent spring clip attached to the door prevents door from being opened surreptitiously or forcibly, except by the use of a special tool available only to authorized personnel.

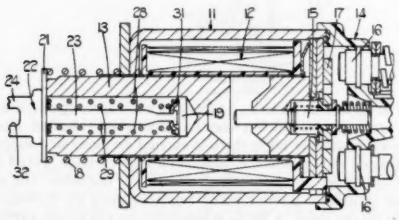
A tool for the removal of the deterrent spring clip is disclosed which will readily fit around engaged clip and which can be manipulated manually to distort clip and remove it so that door will be free to be opened.

3,822,469

METHOD OF MAKING A SOLENOID FOR USE IN AN ENGINE STARTING MECHANISM

Alan William Lazenby, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Division of Ser. No. 204,606, Dec. 3, 1971, Pat. No. 3,750,066.
This application Mar. 22, 1973, Ser. No. 344,026
Int. Cl. H02k *15/00*
U.S. Cl. 29—596 **4 Claims**



A method of manufacturing an armature assembly for a solenoid includes slidably engaging a first abutment member with a first part of a link member. The link member is provided with an abutment intermediate its ends which limits relative sliding movement between the link member and the first abutment member in one direction. A compression spring is then engaged with the first part of the link member so that the spring encircles the first part of the link member. The spring is compressed in a longitudinal direction so that one end of the spring engages the first abutment member and the first abutment member engages the abutment while the free end of the first part of the link member protrudes from the other end of the spring. A second abutment member is then engaged with the portion of the first part of the link member which protrudes from the spring the second abutment member engaging a stop member at the free end of the first part of the link member. The spring is then released so that the second abutment member is urged into engagement with the stop member, and the first part of the link member is then inserted into the hollow armature of the solenoid and the first abutment member is secured to the armature.

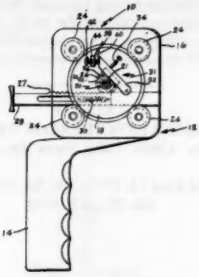
3,822,470

TRIMMING TOOL FOR COAXIAL CABLES

Donald A. Hildebrand, 7 Sunset Dr., Mtd. Rt. No. 2, Rome, N.Y. 13440

Filed Nov. 22, 1972, Ser. No. 308,887
Int. Cl. B26b *27/00*
U.S. Cl. 30—90.1 **5 Claims**

A trimming tool for coaxial cables having a hand held supporting structure on which is rotatably mounted a circular member. Both the supporting structure and circular member have aligned apertures therein through which a cable to be



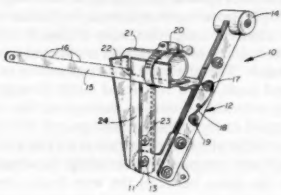
trimmed is inserted. A cutter mechanism is fixedly mounted on the circular member for rotation therewith. Upon rotation of the circular member trimming of the cable takes place.

3,822,471

PORTABLE SAWING DEVICE

Jimmie Ray Crowl, 9011 E. 29 Pl., Tulsa, Okla. 74129

Filed Oct. 2, 1972, Ser. No. 294,320
Int. Cl. B23d *21/06*
U.S. Cl. 30—92 **4 Claims**



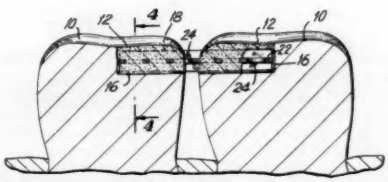
A portable sawing device including a frame integral with a handle, the said frame having saw guiding means and means suitable for mounting objects to be cut, the said handle being pivotally connected to one end of the said frame; a removable saw blade being mounted on the said handle, a spring mounted on the said handle for holding the said saw blade against the object to be cut.

3,822,472

TOOTH RIGIDITY IMPARTING DEVICE AND METHOD OF IMPLANTATION THEREOF

Leonard Garfinkel, 11 Buffalo Ave., Islip, N.Y. 11751

Filed Jan. 31, 1973, Ser. No. 328,354
Int. Cl. A61c *13/00*
U.S. Cl. 32—2 **4 Claims**



A tooth rigidity imparting device and method of implanting into a pair of adjacent teeth of which at least one tooth has lost

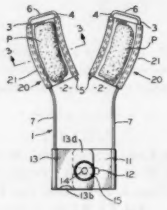
its resistance to mobility in the jaw, including contiguous cavities being drilled in each of the teeth, the device being a rigid elongate beam member having the ends thereof located in the cavities and extending between the teeth, and with the ends encompassed by a self-hardening dental filling material in the cavities so as to form a rigidly interconnected tooth structure.

3,822,473

BIB AND COMBINATION THEREOF WITH BITE TRAY

Russell J. Jones, 13804 Lake Shore Dr., Bratenahl, Ohio 44110

Filed June 12, 1973, Ser. No. 369,271
Int. Cl. A61c *9/00*
U.S. Cl. 32—17 **4 Claims**



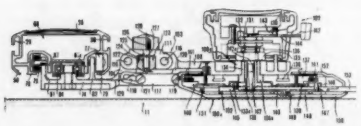
A bib for a bite registration tray has a paste supporting strip of soft, flexible, open mesh material, its lateral margins embedded in resilient snap fastening channels of set plastic material. Embedding of the margins is effected during molding of the channels. The channels are coextensive in length with the strip and each has a restricted entry passage with guide walls flaring outwardly from the passage, so that the channels can be snapped easily onto laterally spaced wire frame members, respectively, of a bite registration tray in a direction radially of the frame members for holding the strip in bridging relation to the space between the wire frame members. The channels are of such resiliency and the strip is so connected thereto that the strip can be adjusted for slack or tensioned condition by rotating one or both of the channels about the axes of the frame members, respectively. The gripping power of the channels is such that, coupled with the lengthwise curvature of the frame members and resilient warpage of the channels, the channels remain in the adjusted position to which they have been rotated, and thus retain the strip with the selected degree of slackness or tension. The bibs are produced in multiple by a new method.

3,822,474

DRAWING INSTRUMENT

Tatsuo Yada; Yoshibumi Komabayashi, and Yoshinori Watanabe, all of Tokyo, Japan, assignors to Muto Industrial Company Ltd., Tokyo, Japan

Filed July 21, 1971, Ser. No. 164,766
Int. Cl. B43l *13/02*
U.S. Cl. 33—76 R **3 Claims**



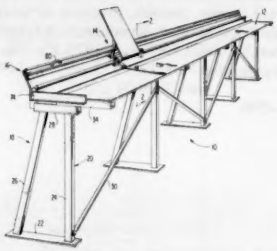
A drawing instrument in which a Y-rail is connected at right angles to an X-rail firmly secured to a drawing board along an X-coordinate axis and permitted to move in sliding motion relative to the X-rail, and in which ruler means with graduated scales is connected to a head mounted on a Y-carsol slidably mounted on the Y-rail. The head is provided with resilient means for urging the ruler means connected to the head to move upwardly away from the surface of the drawing board for facilitating operation of the ruler means.

3,822,475

MEASURING AND MARKING APPARATUS FOR WOODEN STRUCTURAL ELEMENTS

John Calvin Jureit, Coral Gables, Fla., assignor to Automated Building Components, Inc., Miami, Fla.

Filed Aug. 14, 1972, Ser. No. 280,257
Int. Cl. B43l *13/04*
U.S. Cl. 33—76 R **3 Claims**



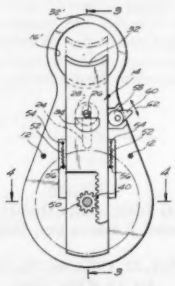
The apparatus includes a table and a fence along one side of the table against which a wooden frame plate is butted. Coextensively with the table there is carried an elongated support and guide rod on which is mounted a slide carriage. Fixed and slideable rules are mounted on one side of the table. The carriage includes a pointer which registers along the various indicia on the rules. A blade is hingedly carried by the carriage and is lowered on top of the plate on the table whereby the plate is marked when the pointer is aligned with selected indicia on one of the rules. The carriage also mount a stand for holding instruction sheets whereby a workman can move the carriage along the slide rod in accordance with information contained on the instruction sheet to locate the blade at selected positions along the plate.

3,822,476

FINGER AND RING MEASURING GAUGE

Athos D. Leveridge, Pompton Plains, N.J., assignor to Athos D. Leveridge and Therese Leveridge d/b/a A. D. Leveridge, Pompton Plains, N.J.

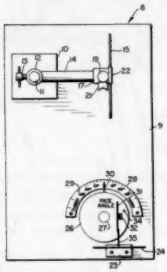
Filed Oct. 24, 1972, Ser. No. 299,896
Int. Cl. G01b *5/08, 3/34*
U.S. Cl. 33—143 C **3 Claims**



A finger and finger ring measuring gauge comprising a casing containing the operating members for measuring and in-

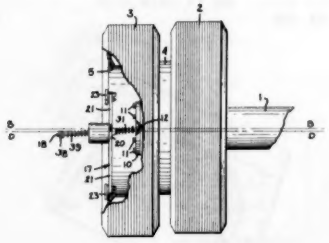
dicating the measurements of fingers and rings to be fitted thereto, characterized by combining (a) a simplicity in structure, (b) an ease of manipulation, (c) a facility in measuring and visibly indicating the finger and ring sizes measured, and (d) an attractiveness in appearance of the gauge.

3,822,477
GOLF CLUB ANALYZER
Jan S. Collins, 423 Flormond Ave., Ormond Beach, Fla. 32074
Filed July 25, 1972, Ser. No. 275,047
Int. Cl. G01b *5/24*
U.S. Cl. 33—174 F **9 Claims**



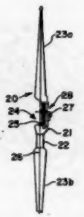
A device or instrument for accurately measuring the important variables of a golf club to determine if the club is suitable to the requirements of a particular player. By adjustments of various part of the instrument, the loft, lie, face angle and face height of a golf club, which has been applied to the device, can be quickly and accurately determined.

3,822,478
WHEEL CENTERING DEVICE
Kenneth M. Aly, 433 1st Ave., and Alton S. Kjorlien, Rt. 2, Box 110, both of Perham, Minn.
Filed Oct. 12, 1972, Ser. No. 296,836
Int. Cl. G01b *5/25, 5/255*
U.S. Cl. 33—193 **10 Claims**



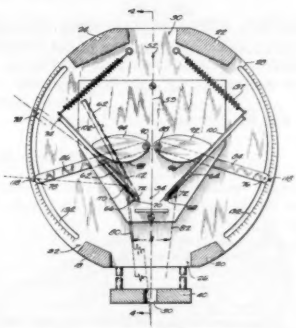
A device for centering one wheel rim with respect to another in dual wheel arrangements for automotive vehicles. A mounting structure, having means for application to a wheel rim, supports a centering rod having an inner end receivable in an axially opening central recess in a vehicle wheel construction. The centering rod is universally pivotally movable relative to the mounting structure, and has an indicator which cooperates with a portion of the mounting structure to provide a visual indication as to the state of axial alignment or misalignment of the wheel rims of the dual wheel.

3,822,479
ARCHERY BOW SIGHT
Robert J. Kowalski, 512 Berner St., Pittsburgh, Pa. 15215
Filed Sept. 12, 1972, Ser. No. 288,251
Int. Cl. F41g *1/00;* **F41b** *5/00*
U.S. Cl. 33—265 **12 Claims**



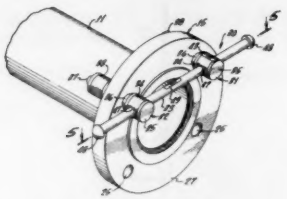
An archery bow sight having one or more sighting elements rotatably supported on a screw device presented by a bracket. The bow sight incorporates adjusting means by which each sighting element is moved along the screw device independently of the others; a master dial for rotating the screw device thereby to move all of the sighting elements in unison; and resilient means for releasably holding each sighting element in a sighting or out position. The adjusting means and the master dial are utilized in accurately calibrating the bow sight for master and secondary ranges. In using the bow sight for target practice, hunting or in tournaments, the master dial is utilized to position accurately a selected sighting element at one of the secondary range marks and to return the sighting element to the master range mark.

3,822,480
POSITION LOCATING DEVICE
Jerome F. Rolefson, W220 N6755 Townline Rd., Sussex, Wis. 53089
Filed Nov. 10, 1972, Ser. No. 305,572
Int. Cl. G01c *1/00, 21/00*
U.S. Cl. 33—280 **7 Claims**



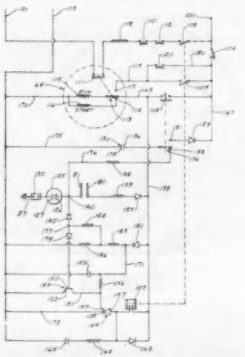
A position locator or homing device for use by fishermen, divers, etc, includes a view finder for directly observing one landmark and adjustable mirrors for reflecting images of other landmarks into the view finder for simultaneous viewing of three landmarks. The position locator also includes scales for recording the angular position of the reflected landmarks to enable pre-setting the adjustable mirrors at the recorded angle so that the user can subsequently find the position of the previous fix. Hairline indicator pins mounted on swing arms and spaced from the mirrors enable accurate recording of the relative angular position of the reflected landmarks and are employed to subsequently locate the position of the fix.

3,822,481
PIPE FLANGE ALIGNER
Robert L. Doan, 10362 Vic Pl., Garden Grove, Calif. 92642
Filed June 1, 1973, Ser. No. 365,845
Int. Cl. G01c 9/28
U.S. Cl. 33—371 3 Claims



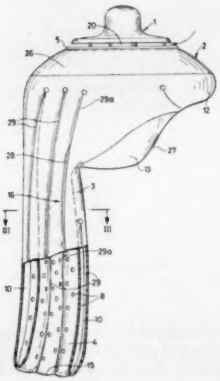
Apparatus for vertically leveling the face and horizontally aligning the pairs of holes of a pipe flange comprising a pair of self-aligning line-up pins engagable with the respective holes of one of the pairs of holes in the pipe flange, the pins aligning themselves with the axes of the holes; an elongated bar extending perpendicularly through the line-up pins for interconnecting and maintaining the pins in parallel, spaced-apart relationship with the line-up pins being movable relative to the bar, toward and away from each other; a first bubble level mounted on one of the line-up pins for vertically leveling the face of the pipe flange; and a second bubble level mounted on the bar for horizontally leveling the holes of the one pair of holes.

3,822,482
MOISTURE SENSING CONTROL FOR DRYER
Curran D. Cotton, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa
Filed Nov. 2, 1973, Ser. No. 412,455
Int. Cl. F26b 19/00
U.S. Cl. 34—45 21 Claims



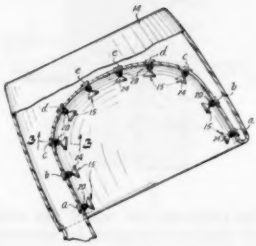
In a material moisture sensing control, an integrating switch, in series circuit with a pair of moisture sensing electrodes in a fabric drying apparatus, is operable to a conductive posture for a time delay period as a function of the dryness condition of the fabrics being dried. In one embodiment an integrating switch comprises an electrolytic cell operable to the conductive posture by current flow through the wet fabrics and operable for returning to the nonconductive condition upon the fabrics achieving a predetermined dryness condition. A transistor is operable for initiating a control function responsive to the high voltage developed across the electrolytic cell in the nonconductive condition.

3,822,483
PORTABLE HAIR DRYER FOR LONG HAIR
Otto Hubner, Mauerkircherstrasse 199, Munich 81, Germany
Filed May 16, 1973, Ser. No. 360,759
Claims priority, application Germany, May 19, 1972, 2224488; Dec. 12, 1972, 2260430
Int. Cl. A45d 20/24
U.S. Cl. 34—99 11 Claims



A light weight hair dryer for use for drying long hair and having inner and outer jackets divided into longitudinal cells and provided with face engaging cushions for preventing loss of warm air while permitting the hair to freely fit within the shoulder-length hood. Flap covered slots are provided for facilitating insertion of long hair.

3,822,484
SIMULTANEOUS HAIR DRYING AND STYLING
Eva Reed, 4001 Clover Hill Ter., Olney, Md.
Filed Sept. 10, 1973, Ser. No. 396,055
Int. Cl. A45d 20/24
U.S. Cl. 34—99 3 Claims



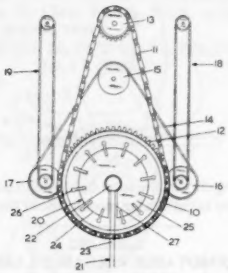
A hair dryer hood is constructed to include air directing means to cause the air used for drying hair to flow in a controlled path around the head to simultaneously dry and shape the hair and thereby produce a hair style setting which is determined by the controlled air flow pattern.

3,822,485

ROLLER MACHINE FOR PROCESSING GOODS

Emile Bernard Bates, 11 Barrington Rd., Stoneygate, Leicester, England

Filed July 17, 1972, Ser. No. 272,640
Int. Cl. F26b *11/02*
U.S. Cl. 34—121 10 Claims



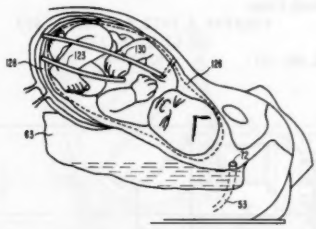
A roller machine, for processing goods in web or sheet form or textile articles, of the type comprising a driven roller over the periphery which the goods travel. The roller is suspended by being slung in bights of two endless flexible elements which are spaced apart lengthwise of the roller and are themselves guided and supported to circulate in endless paths, at least one of which elements is driven and rotates the roller. This mode of mounting and driving the roller places virtually no restriction on the roller diameter and permits of there being, at least at one end of the roller, an aperture of adequate size to permit the introduction of gas or electrical heating apparatus or oil fired apparatus. It is also possible to arrange for a positive drive without any clatter.

3,822,486

DYNAMIC CHILDBIRTH SIMULATOR FOR TEACHING MATERNITY PATIENT CARE

Charles F. Knapp, and George S. Eades, both of Lexington, Ky., assignors to The University of Kentucky Research Foundation, Lexington, Ky.

Division of Ser. No. 308,542, Nov. 21, 1972. This application Nov. 5, 1973, Ser. No. 412,886
Int. Cl. G09b *23/32*
U.S. Cl. 35—17 7 Claims



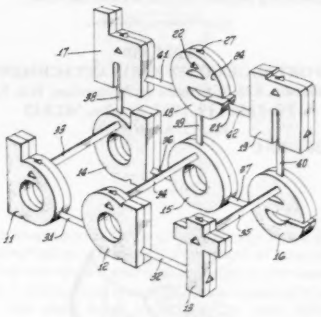
A programmable patient simulator for teaching maternity patient care includes a life size manikin with a pelvis, vaginal canal, uterus, placenta, umbilical cord, and a fetal doll from which heart sounds are emitted. A programmable electro-pneumatic system controls the simulated uterine contractions, position of the uterus, rupture of membranes, expulsion of fetal doll, and fetal heart rate during labor and delivery sequence. The invention described herein was made in the course of work under a grant or award from the Department of Health, Education and Welfare.

3,822,487

ALPHABET BLOCK DISPLAY AND TOY

George B. Koch, 644 Landfair, No. 105, Los Angeles, Calif. 90024

Filed Mar. 15, 1973, Ser. No. 341,460
Int. Cl. G09b *11/40*
U.S. Cl. 35—35 J 10 Claims



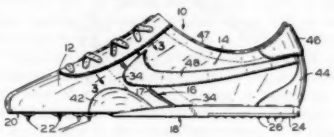
Alphabet letters and other symbols are constructed in relatively large three-dimensional block form. The block symbols are provided with connecting means in the form of elongated connecting rods cooperating with mated recesses or sockets formed within the letter blocks. The sockets are arranged on each of the blocks so that the symbols, such as letters of the alphabet can be arranged in vertical, horizontal and/or front to back word displays. The block letters or symbols are provided with recesses or sockets particularly arranged to receive the inter-connecting rods so that nonsensical arrangements of the blocks, such as an upside down letter, are precluded. As an educational toy, this helps the child assemble the letter blocks into a meaningful word pattern, or at least into a display in which letters of the alphabet are properly oriented.

3,822,488

ATHLETIC SHOE HAVING UPPER SECTIONS OF DIFFERENT MATERIALS AND COVER STRIP UNDER JUNCTION BETWEEN SUCH SECTIONS

Jeffrey O. Johnson, Beaverton, Oreg., assignor to BRS, Inc., Beaverton, Oreg.

Filed Jan. 17, 1973, Ser. No. 324,529
Int. Cl. A43b *1/02*
U.S. Cl. 36—2.5 AM 14 Claims



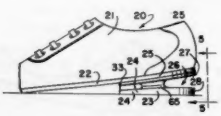
An athletic shoe, such as for track or basketball, is described having an upper formed of at least two upper sections made of different material joined together and to a sole member. Preferably the upper includes an upper section of synthetic material which does not overlap the other upper section to which it is joined, except at the junction along their joined edges. One of the upper sections is a toe section made of leather and joined to a heel upper section made of a synthetic woven fabric, such as nylon, to give the comfort and

close fit of leather, along with the strength, reduced weight and weather resistance of synthetic fabric. However, it is also possible to make the two upper sections of other materials, including vinyl. In addition, a cover strip including a layer of synthetic foam material and a backing layer of fabric, such as nylon, is provided over the inner surface of the junction formed by the overlapping edges of two upper sections where they are joined together to provide greater comfort and additional reinforcing support for the arch of the shoe.

3,822,489
SPORT SHOE CONVERSION ATTACHMENT
Earl S. Johnson, 828 N. Broadway, Milwaukee, Wis. 53202
Filed Mar. 19, 1973, Ser. No. 342,833
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 C **1 Claim**

A flexible unitary insert for attachment releasably over the tongue of an oxford shoe and under the laces thereof with the ornamented portion thereof adapted to overlie the laces in tied position to hide the lace bows and substitute an overlying sports design to convert the oxford to a sports shoe in appearance.

3,822,490
HOLLOW MEMBER FOR SHOES
Steve A. Murawski, 13422 Ave. K, Chicago, Ill. 60633
Filed May 2, 1973, Ser. No. 356,333
Int. Cl. A43b *21/26*
U.S. Cl. 36—2.5 R **4 Claims**



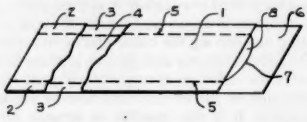
A hollow member for a shoe which includes a recessed construction so that as the user walks a cushioned effect is provided.

3,822,491
SKI BOOT HINGED ON SOLE
Richard K. Rathmell, 12 Pine Tree Rd., Ramsey, N.J. 07446
Filed Nov. 15, 1973, Ser. No. 416,193
Int. Cl. A43b *00/00*
U.S. Cl. 36—2.5 AL **15 Claims**

A ski boot that includes an upper that supports the skiers foot, ankle, and lower leg as a relatively rigid unit, a separate rigid sole with means for the sole to be attached to the ski, a hinge that connects the sole to the upper, and means to adjust

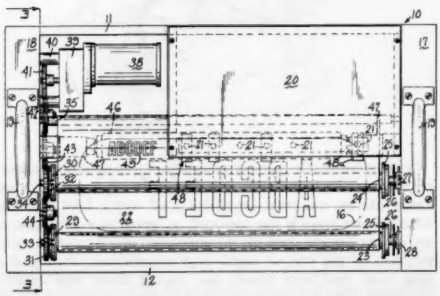
the effective rigidity of the total boot and to adjust the angle of forward lean by constraining motion about the hinge.

3,822,492
REMOVABLE REUSABLE LABELS
Thomas B. Crawley, 252 Sherwood Rd., Beaconsfield, Quebec, Canada
Filed May 17, 1973, Ser. No. 361,285
Claims priority, application Canada, Apr. 17, 1973, 168961
Int. Cl. A44c *3/00*
U.S. Cl. 40—2 **4 Claims**



A reusable label comprising a sheet with pressure sensitive undercoating, said undercoating being protected with separably attached backing paper which is extended somewhat beyond one end of the label to form a tab. Perforations through both label and backing paper and a slit in the backing paper tab are furnished to provide means of conveniently detaching separable portions of backing paper and/or label, whereby the label can be initially affixed as required and a portion thereof subsequently detached for reuse.

3,822,493
DISPLAY APPARATUS
William B. Maley, Orange, Conn., assignor to Techlite, Inc., Milford, Conn.
Filed Feb. 4, 1972, Ser. No. 223,473
Int. Cl. G09f *11/28*
U.S. Cl. 40—31 **5 Claims**



A display apparatus for displaying a plurality of items on a curtain wherein the items are back-lighted by a light source

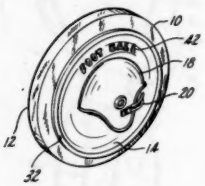
and the curtain further contains coded position information associated with each item which is also backlighted by the same light source so that photo-sensitive devices may sense the position of the curtain.

3,822,494

WALL PLAQUE AND METHOD OF FABRICATING SAME

Robert F. Zivica, St. Claire Shores, Mich., assignor to Select Markets, Inc., Detroit, Mich.

Filed Oct. 20, 1972, Ser. No. 299,373
Int. Cl. G09f 1/12
U.S. Cl. 40—154 7 Claims



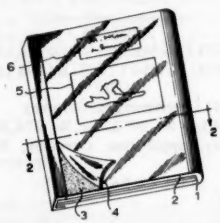
A wall plaque having an outer rim member fabricated from a thermoplastic polystyrene with a surface finish resembling a wood grain. The rim member is provided with a central aperture receiving a concave dish-shaped center plate on which is mounted a decorative member representative of a sport, such as football or the like. Integrally molded to the concave surface of the center plate is indicia representative of the particular sport for example, the name of a football team, or the like. The rim member and center plate are fabricated in such a manner that they are interchangeable for use with different decorative members and indicia representative of different sports such that only one set of molds is required to fabricate the rim member and center plate, which rim member and center plate are interchangeably used in the fabrication of wall plaques representative of different sports and the like. A method of fabricating the wall plaque is disclosed.

3,822,495

IMPROVED PHOTOGRAPH MOUNT

Tadao Ohfuji, Tokyo, Japan, assignor to Happy Shokai Co., Ltd., Tokyo, Japan

Filed Nov. 28, 1972, Ser. No. 310,080
Int. Cl. G09f 1/10
U.S. Cl. 40—158 4 Claims



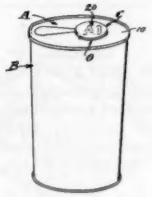
An improved photograph mount comprising a substratum member, a primary transparent film having a non-drying tacky pressure-sensitive adhesive coatings on the outer face of the film and overlaying the substratum member, and a secondary transparent film covering and releasably adhering to the primary transparent film, whereby photographs can be preserved together with a sheet of paper on which any desired matters are noted down, the sheet being capable of inserting and transferring between the primary transparent film and the substratum member.

3,822,496

DISPLAY PLATE FOR OPENERS OF PRE-SCORED CANS

Delwin V. Minder, 2818 Colorado Blvd. No. A22, Santa Monica, Calif. 90405

Filed Aug. 23, 1973, Ser. No. 390,906
Int. Cl. G09f 3/02
U.S. Cl. 40—307 10 Claims



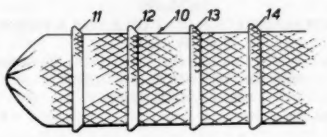
A plate adapted to enhance articles for sale in the presentation of advertising, and namely containers of beverages and the like that are opened with a levered opener permanently attached to a pre-scored area which is subsequently removed thereby, the plate being detachable to said opener and adapted to be suitably shaped and to carry and openingly present printed matter.

3,822,497

TRAWL ARRANGEMENTS

Ivar Rivenaes, Krakenes, and Oddvar Johan Lid, Fyllingsdalen, both of Norway, assignors to Ivar Rivenaes A/S, Damsgardson, Norway

Filed Aug. 6, 1973, Ser. No. 386,123
Claims priority, application Norway, Aug. 21, 1972, 2991/72; Jan. 10, 1973, 96/73
Int. Cl. A01k 73/02
U.S. Cl. 43—9 13 Claims



Trawl arrangement having an adjustable trawl bag volume comprising a trawl bag with connecting means each connected to one or more mesh members thereof. The connecting means have a tensile strength less than the tensile strength of said mesh members and are adapted to extend axially of the trawl bag while contracting together said trawl bag in an axial direction to form one or more axially double-layered annular folds. A break-producing portion of each connecting means has said tensile strength preselected according to the object of use, each end of said portion having a fastening portion designed for reception of mesh formations arranged directly opposite each other in the trawl bag folding. The connecting means are adapted to be fastened into the trawl bag independently of each other for absorbing their respective proportion of the axially directed tensile force therethrough.

3,822,498

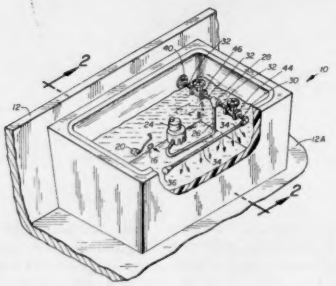
AERATOR FOR A FISH LIVE WELL

Don T. Butler, 7715 E. 25 Pl., Tulsa, Okla.

Filed Mar. 2, 1973, Ser. No. 337,455
Int. Cl. A01k 97/04
U.S. Cl. 43—57 5 Claims

An aerator for a fish live well including a vessel having open top and a first and second opening therein, the vessel being

positionable in water so at least one of the openings is below the water surface to thereby establish a water level in the vessel, a pump positioned in the vessel having an intake below the water surface, a foraminous water distributor positioned within the vessel and above the water level, a conduit connecting the pump output to a tee fitting, another conduit connecting the tee fitting to the foraminous water distributor whereby water pumped by the pump passes out through the water distributor and through the air before re-entering the water, the second conduit connected from the tee fitting to the second outlet whereby the water pumped by the pump is forced out of the vessel thereby lowering the water level and causing water to flow into the vessel through the first opening, and valve means in each of the conduits leading from the tee fitting to control the ratio of water passing through the water distributor and passing out of the vessel.



ERRATUM

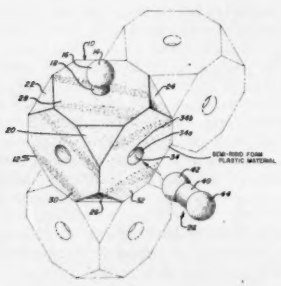
For Class 46—24 see:
Patent No. 3,822,569

3,822,499

TOY BUILDING BLOCK SUITABLE FOR A PAD, RAFT OR THE LIKE

John B. De Vos, 625 Downing Rd., Libertyville, Ill. 60048

Filed May 30, 1972, Ser. No. 258,075
Int. Cl. A63h *33/08*
U.S. Cl. 46—26 **1 Claim**



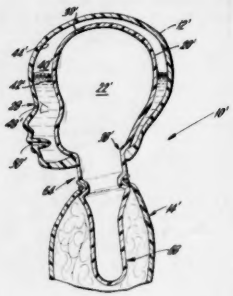
The present invention is a semi-rigid polymeric foam toy suitable for use as a toy building block. Its softness and larger size make it suitable for constructing wrestling mats and floatable rafts. Its lightness make lifting and throwing relatively easy for a child. The block has sockets and one integral projection for connecting to other blocks and the projection serves as a handle when the block is used as a throwing toy in various games.

3,822,500

TEARING EYE DOLL ACTUATED BY SQUEEZING THE TORSO

Robert K. Ostrander, 497 Prospect St., Maplewood, N.J. 07040

Filed Sept. 25, 1972, Ser. No. 291,768
Int. Cl. A63h *3/24*
U.S. Cl. 46—135 A **4 Claims**



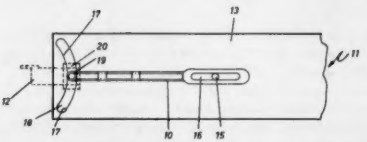
The essence of the invention resides in the use of an area in the interior of a doll's head which is in direct communication with measured holes in the doll's eyes and which is formed by a means of displacing a portion of the hollow interior of said doll's head. The measured holes in the doll's eyes run through from the interior of the doll head to the exterior thereof. The preferred means for forming the area is by the use of a bulbous protrusion which is part of the torso of the doll body and which extends upwardly therefrom. The bulbous protrusion is hollow so that air may be accumulated therein, may be formed other than integrally with the torso although the integral formation is preferred. The area is formed between the interior surface of the doll's head and the exterior surface of the bulbous protrusion and a flange and seat arrangement is formed at the doll's neck to prevent the leakage of fluid from the area when fluid is contained or injected therein. Fluid is urged into the area by the use of a slit formed in the back of the mouth of the doll. Water may be injected into the mouth and this water is used to force the slit open and force fluid into the area. The leakage of fluid through the measured holes in the doll's eyes may be a result of either light pressure applied to the surface of the fluid in the area or as a result of a gravity feed of fluid through the holes. The use of the gravity feed requires an aperture in the doll while the use of pressure requires a hole in the bulbous protrusion within the head of the doll.

3,822,501

CAR COUPLING MEANS WITH MEANS FOR TRANSMITTING PUSH-PULL STRAINS TO THE CAR BODY

Kelterstr. 17, 7441 Unterensingen, Germany

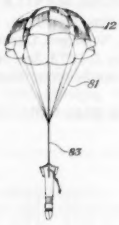
Filed July 24, 1972, Ser. No. 274,259
Claims priority, application Germany, Feb. 2, 1972, 2205661
Int. Cl. A63h *19/19*
U.S. Cl. 46—221 **18 Claims**



A coupling arrangement for model train cars where the coupling bar is laterally pivotable and longitudinally adjusta-

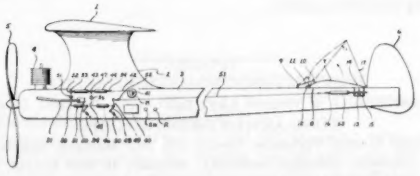
ble either by hand within different positions of a snap connection, or automatically by a guide slot and pin which control the extension of the coupling bar from the car body as a function of its pivotal position with respect to the car body long axis. The coupling bar has bores and recesses for the accommodation of electrical conductors, and the coupling elements are arranged to also serve as electrical coupling plugs.

3,822,502
TOY PARACHUTE APPARATUS
Franklin D. Belz, 2102 Ave. E., Brownwood, Tex. 76801
Filed Sept. 4, 1973, Ser. No. 393,745
Int. Cl. A63h *33/20*
U.S. Cl. 46—241 **6 Claims**



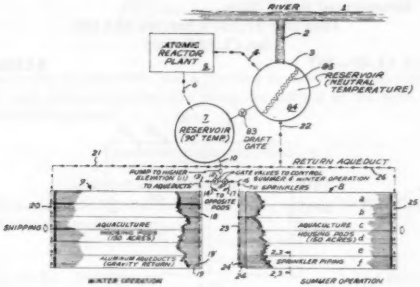
The specification discloses a toy missile having a rear container for holding a parachute and a movable steel member which is drawn towards a forward stationary magnet when the missile reaches its maximum height to release a trigger mechanism to allow an elastic band to expel the parachute from the container through its rear opening. The elastic band is adapted to extend across the rear opening of the container and to be stretched inward by the parachute when inserted into the container such that the elastic band urges the parachute rearward. The trigger mechanism disclosed comprises a flexible cord adapted to extend across the rear opening of the container and to hold the parachute in place and in addition, includes a trigger arm attached to the cord and adapted to be restrained by a slidable member coupled to the movable member when the missile is traveling upward and to be released when the movable member and the slidable member move forward as the missile begins its descent.

3,822,503
MODEL AIRPLANE TIMING MECHANISM
Wesley F. Morris, 7422 E. MacKinley, Scottsdale, Ariz. 85257
Filed May 25, 1972, Ser. No. 257,037
Int. Cl. A63h *27/02*
U.S. Cl. 46—244 B **8 Claims**



A free flight model airplane incorporating a timer for selectively energizing acutating mechanisms controlling the flight path of the airplane is disclosed. The timer includes a source for generating a train of pulses and a plurality of counters responsive to the train of pulses. One or more gates, selectively responsive to the output signals of one or more of the counters, energizes a mechanical actuator at selected time intervals, which mechanical actuator in turn alters the flight mode of the free flight model airplane. Provisions are also available to interrupt the timed sequence on command to effect immediate alteration of the flight mode.

3,822,504
AQUACULTURE STRUCTURE AND METHOD
Arthur C. Kuehn, 1561 W. George Washington Blvd., Davenport, Iowa 52804, and Richard M. Kuebler, 1427 23rd St., Bettendorf, Iowa 52722
Filed Mar. 1, 1972, Ser. No. 230,578
Int. Cl. A01g *31/00*
U.S. Cl. 47—1.2 **10 Claims**

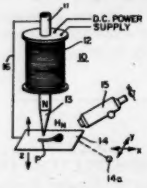


Aquaculture housing pod and method of culture employing heated water from a power plant in which the water temperature is cooled to near ambient for safe discharge into the ambient ecology. The aquaculture housing pods are designed to cover large areas, on the order of 150 acres each, and comprise a column and cable structure supporting overhead sprinkler systems for discharge on hydroponic beds contained under the housing pod structure. A series of aqueducts and hydroponic planting beds are arranged underneath the structure. The method involves discharging hot water from a power plant into a first holding and distribution reservoir, withdrawing water from the reservoir and passing it through either or both the aqueducts and sprinkler system of the housing pods, collecting excess water from the housing pod, and returning it to a neutral temperature reservoir before either recycling the cooled water to the power plant or discharging it to the environment. The aquaculture housing pod is simple of construction and inexpensive, and the method provides for cooling the water and discharge to the environment without harming the ecology.

3,822,505
METHOD AND APPARATUS FOR INDUCING MORPHOGENETIC ALTERATIONS IN PLANTS
William C. Levengood, Grass Lake, Mich., assignor to Sensors Incorporated, Ann Arbor, Mich.
Filed Mar. 27, 1972, Ser. No. 238,489
Int. Cl. A01c *1/00*; **A01g** *7/04*; **H05b** *9/04*
U.S. Cl. 47—1.3 **15 Claims**

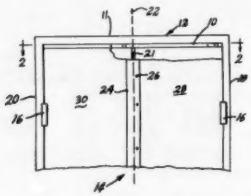
The process of and apparatus for treating plants to provide morphogenetic alterations which are transferred to succeed-

ing generations by applying a predetermined gradient force field to a predetermined localized region on the plant wherein



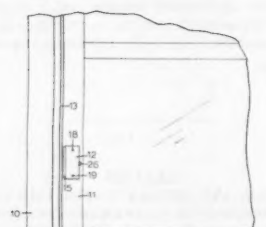
the field and the region are selected in accordance with the desired morphogenetic response.

3,822,506
DOOR COORDINATING DEVICE
Frederick F. Fishbach, Saline, Mich., assignor to Door Controls Incorporated, Saline, Mich.
Filed May 21, 1973, Ser. No. 362,106
Int. Cl. E05c *7/05*
U.S. Cl. 49—367 **8 Claims**



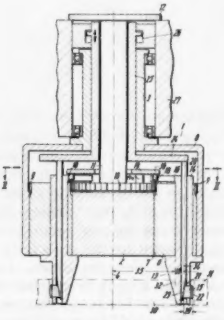
A door coordinating device for use with a pair of doors which have overlapping edges, astragals, or rabbeted faces, or for any other reason have a preferred sequence for closing. The device has a pivotally mounted door stop which engages and holds open the overlapping door which is properly closed last until the overlapped door is closed thus triggering a latch which then allows the overlapping door to close. The device also provides that the latch mechanism can be overridden when sufficient force is exerted on the overlapping door regardless of the position of the overlapped door.

3,822,507
WINDOW SASH HOLDER
Louis A. Buczkowski, 1332 E. 7th St., Erie, Pa. 16503
Filed June 13, 1972, Ser. No. 262,307
Int. Cl. E05d *13/08*
U.S. Cl. 49—417 **1 Claim**



A holder for a window sash made up of a slide rail strip attached to a window frame and a spring loaded brake mechanism attached to the window sash. The brake mechanism has a housing, which contains a spring, a brake shoe, and a brake lining. The brake lining is frictionally engaged with the slide rail strip and the brake shoe is spring loaded toward the slide rail strip so that the brake frictionally holds the window in position. An adjusting screw engages the spring by which the spring tension on the brake may be adjusted. The adjusting screw varies the frictional resistance of the window and therefore its resistance to movement can be adjusted.

3,822,508
DEVICE FOR CHIP REMOVING MACHINING OF TROCHOIDAL MANTLE SURFACES
Albert Bender, Nellingen, Germany, assignor to Maschinenfabrik Gehring KG, Nellingen, Germany
Filed May 2, 1973, Ser. No. 356,483
Claims priority, application Germany, May 5, 1972, 2221576
Int. Cl. B24b *17/02, 7/00, 9/00*
U.S. Cl. 51—34 R **21 Claims**

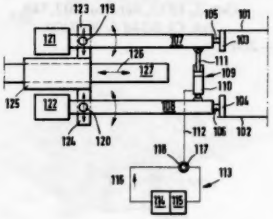


A device for machining trochoidal mantle surfaces, especially the inner epitrochoidal surface of circular piston machines, in which a tool body rotatable about its central axis and provided with bores parallel to the central axis is by means of a cycloidal transmission comprising a rolling path body and arranged in axial alignment with the central axis of the tool body operatively connected to rotatable members journalled in the bores of the tool body and in rolling engagement with the rolling path body. Each of the rotatable members has an eccentric bore therethrough through which extend tool holding elements which by a control mechanism carry out a movement around the above mentioned central axis and simultaneously a pivotal movement in the eccentric bore of the pertaining rotatable member.

3,822,509
LONG-ARM GRINDING MACHINE
Egon Evertz, Vorlander Strasse 23, 565 Solingen, and Rolf Seybold, Solingen, Germany, assignors to said Evertz, by said Seybold
Division of Ser. No. 160,676, July 8, 1971, abandoned. This application Mar. 27, 1973, Ser. No. 345,295
Int. Cl. B24b *5/40*
U.S. Cl. 51—40 **2 Claims**

A grinding machine for use in the machining of elongated surfaces, the machine having rotatable grinding means com-

prising at least two grinding heads disposed respectively at one end of two long shafts and rotatable respectively in two



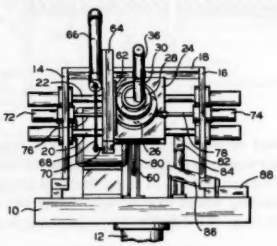
bearings which are interconnected by means of a piston and cylinder unit whereby said grinding heads can be urged towards or away from each other on actuation of said unit.

3,822,510

AUTOMATIC GRINDING MACHINE

Robert D. Simonton, and Albert A. Axe, both of Fremont, Ohio, assignors to Crescent Manufacturing Company, Fremont, Ohio

Filed Feb. 27, 1973, Ser. No. 336,211
Int. Cl. B24b *9/00*
U.S. Cl. 51—96 **6 Claims**



A machine for grinding a cutting surface on an article wherein the machine has magazine means for automatically feeding the articles to be ground to a grinding position and means for automatically ejecting the ground articles into a hopper, bin or the like.

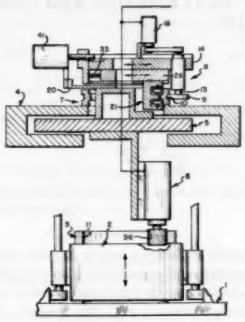
3,822,511

CAM CONTROLLED GRINDING MACHINE

Nils O. Hoglund, Short Hills, N.J., assignor to Tri-Ordinate Corporation, Berkeley Heights, N.J.

Continuation-in-part of Ser. No. 237,175, March 22, 1972, which is a division of Ser. No. 164,406, July 20, 1971, Pat. No. 3,663,188, which is a continuation-in-part of Ser. No. 147,145, May 26, 1971, abandoned. This application July 13, 1972, Ser. No. 271,571
Int. Cl. B24b *17/02, 17/08*
U.S. Cl. 51—101 R **19 Claims**

A grinding apparatus having a cam member with a surface corresponding to the surface of a workpiece to be ground, a cam follower mechanism for moving along the cam surface, structure for supporting the workpiece in fixed position rela-



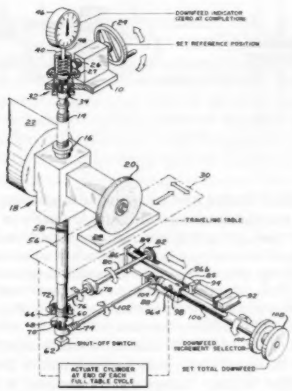
tive to the cam member, and a grinding element movable with the cam follower mechanism along the surface of the workpiece to be ground.

3,822,512

AUTOMATIC SURFACE GRINDER

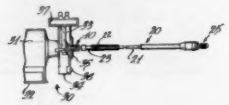
Norman Joseph Mercer, Jr., Hillside, Ill., assignor to Esterline Corporation, Broadview, Ill.

Filed June 30, 1972, Ser. No. 268,017
Int. Cl. B24b *49/00*
U.S. Cl. 51—165.81 **14 Claims**



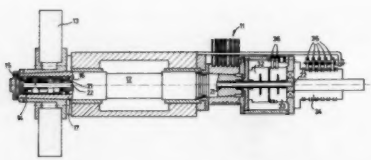
Automatic grinding to preset depths and spark-out finishing are provided in a surface grinder of the type having a traveling worktable and a grinding-wheel head supported by an elevating screw. The screw is slideable longitudinally in its mount, abutting against a fixed stop in its lower position. A jack is employed to raise the screw by an amount corresponding to the desired stock removal. At the conclusion of each full cycle of operation of the traveling table, the jack is automatically lowered a predetermined distance and the grinding continues with the increments of depth thus selected until the final depth is reached, whereupon the jack actuates a switch, initiating spark-out finishing.

3,822,513
BENCH GRINDER APPARATUS
Grover P. Holther, Jr., Mount Prospect, Ill., assignor to Electro Engineering Products Co., Inc., Chicago, Ill.
Filed Apr. 25, 1973, Ser. No. 354,260
Int. Cl. B24b *41/00*; B24d *17/00*
U.S. Cl. 51—168 4 Claims



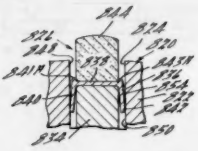
A tool assembly includes a bench grinder, coupler and flexible shaft power take-off apparatus. The coupler is designed to secure the flexible shaft to the bench grinder so that a condition of dynamic balance will be present during rotation thereof.

3,822,514
APPARATUS FOR THE FINE BALANCING OF GRINDING WHEELS
Ulrich Vetter, Stuttgart-Heumaden, Germany, assignor to Schaudt Maschinenbau, GmbH, Stuttgart, Germany
Filed July 26, 1972, Ser. No. 275,243
Claims priority, application Germany, July 29, 1971, 2137901
Int. Cl. F16f *15/00*; B24b *45/00*
U.S. Cl. 51—169 14 Claims



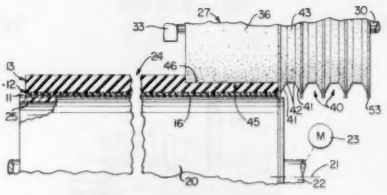
Apparatus for the fine balancing of a grinding wheel comprising two balance masses adjustable jointly in one angular direction and a third balance mass adjustable in the opposite direction all located in a housing which is adjustably rotatable relative to the wheel, the masses being arranged on a common balance shaft rotatable relative to the wheel and to the housing, the housing carrying a pinion meshing with a bevel wheel rotatable with the third mass and with a bevel wheel rotatable with one of the adjustable masses, whereby adjustment of the first two masses causes counter adjustment of the third mass. Two further balance masses may be secured in the housing, the pinion being mounted in one of these. All the masses are preferably semi-circular in cross section. The balance shaft extends through an inner hollow shaft which carries the housing and which in turn extends inside the hollow grinding wheel spindle, control means for adjusting the masses being located at one end of the balance shaft and inner hollow shaft. The control means includes sun and planet gearing interconnecting the balance shaft inner hollow shaft and spindle and adjusting rings connected through disengagable couplings with an adjusting motor. The control may be arranged for operation manually or through electrical circuits, and several forms of electrical control are described as well as electrical means for indicating the degree of imbalance and the compensation movements of the masses.

3,822,515
HONING TOOL
Robert H. Gillette, 205 Pendleton Ave. No. 3, Pendleton, Ind. 46064
Division of Ser. No. 291,279, Sept. 22, 1972. This application Oct. 2, 1973, Ser. No. 402,749
Int. Cl. B24d *5/00*, *7/00*
U.S. Cl. 51—204 8 Claims



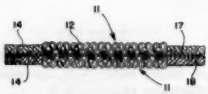
A honing tool incorporating improved means for mounting and retaining abrasive elements in the honing tool.

3,822,516
METHOD OF MAKING AN ENDLESS POWER TRANSMISSION BELT
Walter E. Huber, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio
Filed Nov. 28, 1972, Ser. No. 310,053
Int. Cl. B24b *1/02*, *27/06*
U.S. Cl. 51—326 12 Claims



A method of making an endless power transmission belt having opposed non-parallel portions is provided wherein a belt construction is built on a mandrel and ground with a contoured grinding wheel to precisely define the opposed non-parallel portions of the belt in a simultaneous manner.

3,822,517
BUFFING OR SCRUBBING PAD WITH OUTER ABRASIVE RING
Theron V. Moss, 3175 Falmouth Rd., Shaker Heights, Ohio 44122
Filed Sept. 29, 1972, Ser. No. 293,439
Int. Cl. B24d *11/00*
U.S. Cl. 51—394 11 Claims

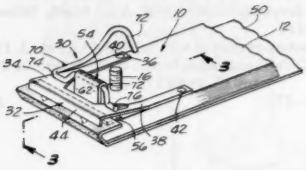


A buffing or scrubbing pad having at least a portion of one side covered by a relatively soft buffing material and a ring of abrasive material around the outer periphery thereof. The buffing material may be yarn or similar soft material for buffing and the abrasive material may be impregnated fiber material, scrim material, or similar material having the desired abrasive properties.

3,822,518
SANDING SHOE AND CLIP THEREFOR

Gerald D. Sjostrand, Fresno, Calif., assignor to Rodac Pneumatic Tools, Los Angeles, Calif.

Filed Sept. 7, 1972, Ser. No. 286,937
Int. Cl. B24d *17/00*
U.S. Cl. 51—386 **14 Claims**

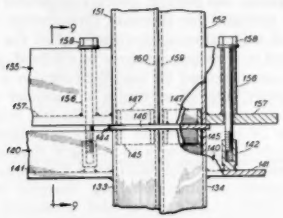


A sanding shoe having an over-center type clip for clamping an abrasive sanding sheet to the end of the shoe. The shoe itself is fabricated from rubber having a metal panel or insert molded into it near the upper surface. The rubber material forms an upstanding rib at the end of the shoe with bevelled inside surfaces. The ends of the abrasive sheet come over the end ribs and it is clamped thereto by a resilient U-shaped metal clamp which is held in the clamped position by an over-center movement.

3,822,519
BUILDING STRUCTURE

Anthony A. Antoniou, c/o Avan Industries, Inc., 1200 Roosevelt Rd., Glen Ellyn, Ill. 60137

Filed June 28, 1971, Ser. No. 157,402
Int. Cl. E04b *1/348*
U.S. Cl. 52—79 **7 Claims**



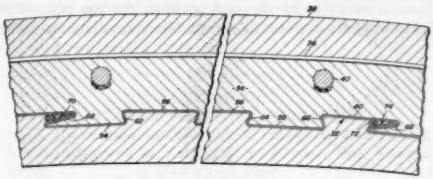
A building system utilizing discrete prefabricated modular building units, adapted to be erected with additional units to form a complete building structure of one or more stories; each unit including a rigid metal parallelopiped framework having upright tubular column sections and selectively spaced truss sections which cooperate with connector means to positively intertie adjacent units both vertically and horizontally to provide a building structure having both column and truss support systems.

3,822,520
PRESTRESSED TANK AND METHOD OF PRODUCING SAME

John M. Crom, Jr., 720 Champagne Dr., Incline Village, Nev. 89450

Continuation of Ser. No. 586,277, Oct. 12, 1966, abandoned. This application Jan. 20, 1970, Ser. No. 4,389
Int. Cl. E04h *12/16*
U.S. Cl. 52—224 **13 Claims**

A prestressed tank including a substantially vertical shell with a layer of cementitious material on each side thereof. The shell comprises a plurality of panels having edges cooperating to form joints. A sealant may be pumped into channels within the joints after application of said layers to the shell to fill

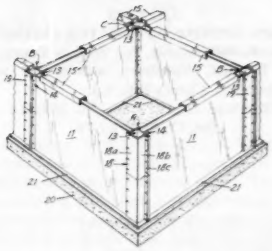


voids and veins within the layers. Sealant is also disposed adjacent to and/or around reinforcing rods and wires disposed in the cementitious material.

3,822,521
MODULAR WALL PANEL SECTION AND BOLTED WALL CONSTRUCTION

Richard V. Lucas, Rt. 2, Jordan, Minn. 55352

Filed Feb. 7, 1973, Ser. No. 330,178
Int. Cl. E04c *1/28, 2/08*
U.S. Cl. 52—593 **11 Claims**



This is a modular hollow panel wall section and a wall constructed from a bolted together assembly thereof, each section including a pair of spaced apart smooth surfaced planar inner and outer panel sheets rigidly connected together by a supporting frame structure including reinforcing spacer members, one of which forms an interfitting member along one horizontal section edge, and a pair of vertical structural side members fixed to the respective side edges of each section with a portion thereof overlapping the marginal side edges of the inner and outer panel sheets and another portion thereof extending transversely across the space between the side edges of said penel sheets each of the side members having bolt receiving apertures therethrough with bolt anchoring means fixed to the inside enclosed overlapped side edges of each section in registration with the apertures through the overlapping portions to permit easy connection of one section with another.

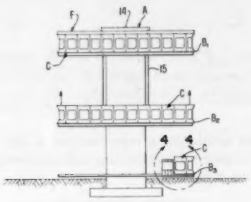
3,822,522
METHOD OF ERECTING A MULTI-LEVEL BUILDING OF CURTAIN WALL CONSTRUCTION

David E. Termohlen, 1670 El Camino Real, Atherton, Calif. 94025, and William G. Irvine, 10560 Castine Ave., Cupertino, Calif. 95014

Division of Ser. No. 156,634, June 25, 1971, Pat. No. 3,729,878, which is a continuation-in-part of Ser. No. 876,407, Nov. 13, 1969, abandoned. This application Oct. 13, 1972, Ser. No. 297,504
Int. Cl. E04g *21/14*
U.S. Cl. 52—745 **3 Claims**

A curtain wall construction and process of erecting the construction is provided for a building which has each of its floors

constructed at ground level and thereafter raised to the floors respective elevated positions. Modular curtain wall sections are fastened to frameworks attached to the floor edges when each building floor is at ground level. Thereafter, when the floor is raised to its elevated position, the top edge of the framework attached to the elevated floor keys into the bottom



edge of the overlying framework attached to the floor above for a sliding engagement and the contiguous edges of the curtain walls overlap one another to provide a continuous weather surface on the exterior of the building. Thus, each floor is completely enclosed upon being raised to its final elevational position.

3,822,523

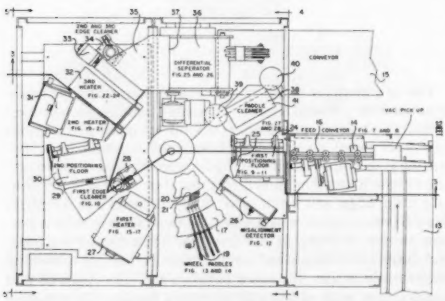
ENVELOPE OPENING APPARATUS AND METHOD

Robert J. Russell, Philadelphia, Pa.; William Young, Wenonah, and Barry D. Nuss, Woodbury, both of N.J., assignors to Kenco Corporation, Cherry Hill, N.J.

Filed Sept. 15, 1972, Ser. No. 289,314

Int. Cl. B65b *43/26*

U.S. Cl. 53—3 **28 Claims**



Apparatus and method for opening an envelope upon three sides. The apparatus employs a circular rotating wheel which supports a plurality of complementary pairs of paddles which are designed to open at predetermined times to receive an envelope and close upon the envelope in a protective manner. The envelope is first received in the paddles with the leading edge thereof slightly exposed. As the paddles progress in their circular motion, the leading edge is engaged by means which weaken the edge. Thereafter, the paddles are opened and a conveyor below the paddles repositions the envelope between the paddles so as the trailing and bottom edges thereof are slightly exposed. As the paddles progress, the trailing and bottom edges are likewise weakened after which the envelope is discharged to an opening means.

Opening means are provided which receive the envelope and convey the envelope by means of a belt over idler pulleys which cause parallel shearing forces to the sides of the envelope by reverse flexing of the envelope to crack the weakened edges. The envelope is then passed between a belt and a roller through which a vacuum is induced to grip the opposite panels of the envelope and exert a separating force perpendicular to the panels to complete opening of the envelope and expose the contents thereof.

3,822,524

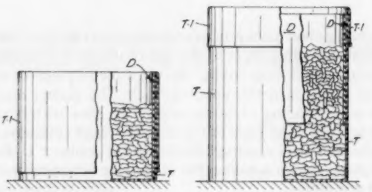
DEVICE AND METHOD FOR FACILITATING THE FILLING OF FLEXIBLE TRASH BAGS

Selmer L. Jerpbak, 6100 Abbot Ave. South, Minneapolis, Minn. 55410

Continuation-in-part of Ser. No. 223,153, Feb. 3, 1972, abandoned. This application Sept. 14, 1973, Ser. No. 397,231

Int. Cl. B65b *67/04, 39/02*

U.S. Cl. 53—37 **2 Claims**



A device for facilitating filling of elongate flexible trash bags utilizes a generally rectangular sheet of material constructed of a slippery, manually flexible composition having sufficient stiffness to retain itself in a cylindrically formed shape. The sheet is provided with a set of spaced fastener-receiving apertures adjacent one end edge thereof. A plurality of parallel sets of similarly shaped fastening apertures is provided in an intermediate portion of the sheet nearer the opposite end thereof. Quickly applicable fastener elements are provided for insertion through two selected aligned sets of said fastening apertures when the sheet is manually flexed in curvilinear manner to a helical, generally cylindrical shape. Secured by said fasteners in a desired adjusted diameter, the sheet forms a distender cylinder for use in a novel method for filling flexible trash bags. The distender cylinder in height is only a fraction of the height of the limp trash bag with which it functions in a combination relationship. The distender is first slipped to the bottommost position within the bag, thereby uniformly distending the same and thereafter trash is dumped through the open top of the bag to a level just below the upper edge of the cylindrical distender. Thereafter the distender is slid upwardly above the level of trash and the filling operation is repeated. These steps for elongate large bags are repeated until the bag is filled to the desired level, whereafter the distender is removed and the upper annular edge of the bag is twisted tightly and secured and preferably sealed.

3,822,525

MACHINE FOR CLOSING FILLED BAGS UNDER VACUUM

Benjamin M. Anderson, deceased, late of Aurora, Ill. (by Madalyn R. Anderson, executrix), and James P. Smithers, Glen Ellyn, Ill., assignors to Armour and Company, Chicago, Ill.

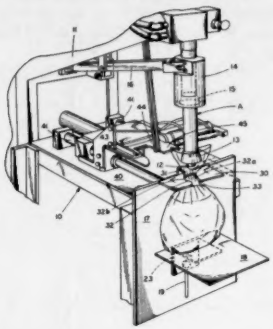
Filed Oct. 6, 1972, Ser. No. 295,625

Int. Cl. B65b *31/04*

U.S. Cl. 53—112 B **8 Claims**

A machine which includes supporting structure for a bag of flexible film material filled with products so that the top portion of the bag above the product is received through a recess in a guideplate to thereby hold the neck of the bag in position

and prevent the film from interferring with the nozzle through which the vacuum is drawn. The supporting structure is adjustable to accommodate different sizes of bags and shapes of product and is tiltable to accommodate products which are slanted on their bottoms.

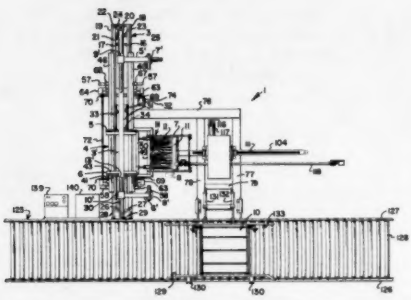


3,822,526

TIRE COMPRESSING AND HANDLING APPARATUS

Billy B. Black, 3343 N.W. Brickyard Rd., Topeka, Kans. 66618

Filed May 14, 1973, Ser. No. 359,703
Int. Cl. B65b *63/02*
U.S. Cl. 53—124 D **14 Claims**



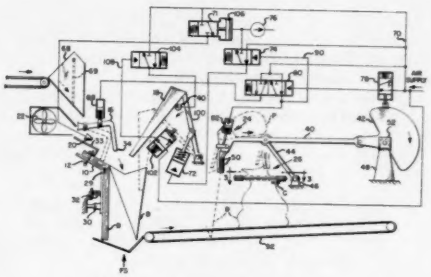
An apparatus for preparing pneumatic tires for shipping and storage including compressing and handling a plurality of tires by positioning same in a group in side-by-side relation and substantially coaxially aligned, compressing the group, moving the compressed group to a shipping structure, positioning the group in said shipping structure which handles one or more groups of compressed tires and maintains the compressed condition until selectively released. The apparatus includes a support structure having at least a pair of laterally spaced, longitudinally extending rails mounted thereon and adapted to receive and support the plurality or selected group of tires between a pair of facing jaws or platens which are movable toward each other to compress a plurality of tires therebetween. Spaced finger groups of a hand assembly engage ends of the compressed tire group and the jaws move away to spread and release the tires which are held by the finger groups. The hand is mounted for movement laterally toward and away from the path of the jaws thereby being adapted to receive and remove the compressed tires from the support structure. The hand is also mounted for movement to a position adjacent a shipping structure on pallet having tire compression maintenance structure. The hand assembly has an ejection member therein which is movable between a retracted position within the hand assembly permitting the hand assembly to receive therein a plurality of compressed tires and an ejection position during movement of the tires out of the hand assembly and into a selected position in a pallet while in a compressed condition.

3,822,527

CONTAINER HANDLING APPARATUS

Gary G. Germunson, and Fredrick R. Schopp, both of Yakima, Wash., assignors to Yakima Wire Works, Inc., Yakima, Wash.

Filed Nov. 9, 1972, Ser. No. 304,954
Int. Cl. B65b *43/36, 51/04*
U.S. Cl. 53—189 **10 Claims**



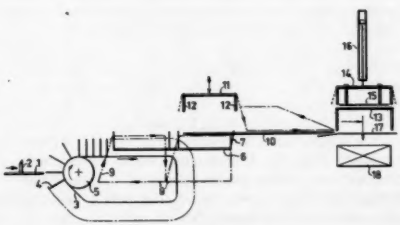
Flexible containers, such as polyethylene bags, are held on a standard wicket and are individually opened by a blast of air and the insertion of an expandable scoop. The bag is then filled with material and after a predetermined time a two finger gripping device engages the top edge of the filled bag and the scoop is removed. The bag is then simultaneously released and pulled from the wicket by the gripping means which further pulls the filled bag directly into a bag closing device or a pocket of a collecting conveyor.

3,822,528

BAG PACKING APPARATUS

Stig Martin Carlsson, and Jan Erik Andreasson, both of Orebro, Sweden, assignors to Sunds Aktiebolag, Sundsvall, Sweden

Filed Nov. 3, 1972, Ser. No. 303,361
Claims priority, application Sweden, Nov. 22, 1971, 14922/71
Int. Cl. B65b *35/30*
U.S. Cl. 53—159 **11 Claims**



By the apparatus of the invention paper bags containing potato chips, pastries or other goods are mechanically packed into outer containers in a manner preventing the crushing or

breaking of the contents of the bags and ensuring that the bags are constantly maintained in a fixed array during their passage through the apparatus. The apparatus comprises a bag conveying path, a bag lifting means cooperating with said path and having the form of parallel rows of outwardly projecting pegs moving along endless paths and adapted to receive therebetween groups of bags in a predetermined array, a horizontally and vertically movable carriage the rear portion of which lifts a group of bags from the bag lifting means onto a bag receiving platform and the front portion of which moves the group of bags along said platform, a vertically movable holder for said group of bags arranged above the platform, a means for further advancing the group of bags along the platform, and a means for transporting the group of bags onto a blank from which the outer container is subsequently formed.

3,822,529

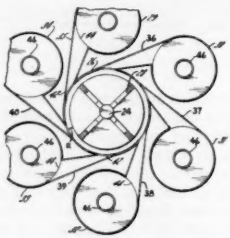
PARTICLE SEPARATION SYSTEM

Rodolfo G. Kilian, Rio Panuco 82, Mexico

Division of Ser. No. 76,487, Sept. 29, 1970, Pat. No. 3,738,090. This application Apr. 17, 1973, Ser. No. 352,011

Int. Cl. B04c *5/04*

U.S. Cl. 55—1 **2 Claims**



Apparatus is illustrated for separating particles from a carrier gas comprising, in combination, a centrifugal fan having impeller blades and a fan casing with the casing being radially separated from the ends of the blades and a plurality of cyclone collectors radially arranged in close proximity with respect to the fan. Conduits are positioned between the fan and the collectors with one end of the conduits opening into the fan casing and the other ends thereof opening into individual collectors. The walls of the conduits are arranged such that particles entering the conduits from the fan continue to the collectors substantially along an undisturbed trajectory and the conduits have a substantially continuously increasing cross-sectional area from the fan to the collectors.

3,822,530

CHROMATOGRAPHIC COLUMN PACKING

Edward N. Fuller, and Michael E. Bartholomew, both of c/o Phillips Petroleum Company, Bartlesville, Okla. 74004

Continuation-in-part of Ser. No. 44,596, June 8, 1970, abandoned. This application Nov. 8, 1971, Ser. No. 196,763

Int. Cl. B01d *15/08*

U.S. Cl. 55—67 **10 Claims**

A chromatographic column packing comprising a polymeric film on a support, the formation of the polymer and its deposition on the support being made in situ.

3,822,531

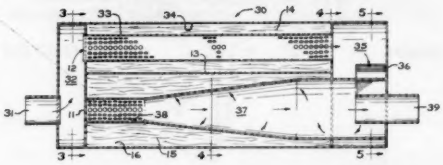
DEVICE FOR AGGLOMERATING AND SEPARATING PARTICULATES FROM A GAS

John P. Wisnewski, Corpus Christi, and Martin B. Treuhaft, San Antonio, both of Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 27, 1973, Ser. No. 336,318

Int. Cl. B01d *50/00*

U.S. Cl. 55—315 **12 Claims**



An apparatus is described for conditioning gaseous emissions from an internal combustion engine, e.g., an automobile engine, said emissions containing particulate matter, e.g., lead and other particulates, said apparatus comprising an agglomerator coupled to an inertial separator in a housing and which apparatus is preferably coupled to a filter.

3,822,532

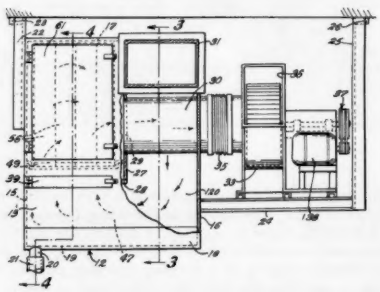
OIL MIST RECOVERY APPARATUS

Harold W. Weisgerber, Reading, Ohio, assignor to The Kirk and Blum Manufacturing Co., Cincinnati, Ohio

Filed Nov. 12, 1971, Ser. No. 198,265

Int. Cl. B01d *50/00*

U.S. Cl. 55—324 **2 Claims**



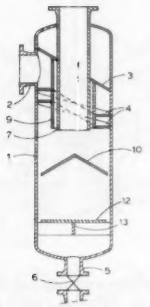
Apparatus is disclosed for effecting separation of oil mist from a carrier air stream particularly for use in the reclamation of oil mist that is generated in or near factory equipment and to the cleaning and return of the carrier air stream to the factory area. The apparatus includes a horizontally operable centrifuge chamber disposed above one end portion of an oil collecting pan, a primary oil mist filter located above the opposed end portion of the pan and a secondary oil mist filter positioned above the primary oil mist filter. The relative dispositions of the filters and the centrifuge chamber provide a number of sharp changes in direction of the oil mist ladened air stream through the apparatus to effect optimum oil mist-from-air stream separation.

3,822,533

DEVICE FOR REMOVING IMPURITIES FROM GASES

Leendert Oranje, Marsmanhof 4, Haren, Netherlands, assignor to N.V. Nederlandse Gasunie, Groningen, Netherlands

Filed Mar. 2, 1973, Ser. No. 337,540
Claims priority, application Netherlands, Mar. 4, 1972, 722901
Int. Cl. B01d 45/00
U.S. Cl. 55—394 3 Claims



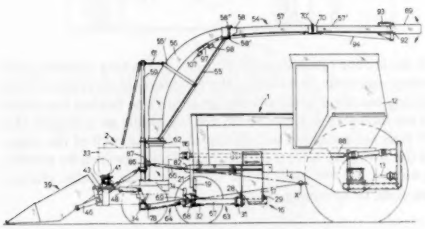
An improved separator of the type having a cylindrical vessel, a feed tube extending into the vessel normal to its axis, an axial discharge tube and a first plate mounted perpendicular to the vessel axis under the axial discharge tube. To avoid undue wear on the separator bottom, a second plate is mounted beneath the first plate, which may be conical at specific distances and having specific dimensions.

3,822,534

FRONT MOUNTED HARVESTER

Virgil B. Martin, West Bend, Wis., assignor to Gehl Company, West Bend, Wis.

Filed Jan. 9, 1973, Ser. No. 322,129
Int. Cl. A01d 45/02
U.S. Cl. 56—13.9 10 Claims



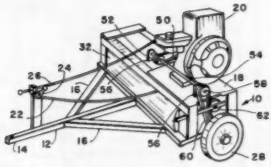
Flexibility between a tractor and a front mounted harvester unit is provided by an articulated connecting linkage which positions the harvester unit in longitudinally aligned, vertically floating and laterally tiltable relation to the tractor. Crop material cut by the harvester unit is discharged into a trailing wagon through a deflector which extends upwardly from the harvester unit and rearwardly over the tractor, the connecting linkage functioning automatically to keep the deflector aimed into the wagon while the harvester unit floats up and down and tilts laterally relative to the tractor.

3,822,535

POWERED LAWN RAKER

Roger Wehrman, Sheboygan, Wis.

Filed Jan. 11, 1973, Ser. No. 322,752
Int. Cl. A01d 51/00
U.S. Cl. 56—16.4 4 Claims



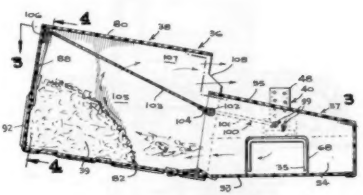
A powered, towable lawn rake having a rigid frame, a rake and drive means on said frame with the drive to said shaft being through a series of belts and pulleys. Mounted on said rake shaft are a multiplicity of torsionally wound coil springs, the ends of said springs being raking fingers to agitate and loosen dead grass and other matter from lawn.

3,822,536

GRASS CATCHER

Harold P. Leader, Box 325, Helena, Ala. 35080

Filed May 24, 1973, Ser. No. 363,421
Int. Cl. A01d 35/22
U.S. Cl. 56—202 2 Claims



A grass and litter catcher for lawn mowers that includes a unit that has sections that are adjustably connected together, and wherein there is provided a filter member in the unit.

3,822,537

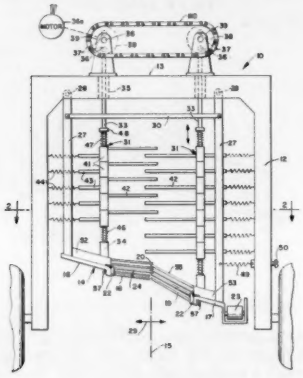
APPARATUS FOR HARVESTING GRAPES

Abdul Harry Sell, Southport, N.C., assignor to Darf Corporation, Edenton, N.C.

Division of Ser. No. 178,021, Sept. 7, 1971, Pat. No. 3,772,866. This application Dec. 8, 1972, Ser. No. 313,321
Int. Cl. A01g 19/00
U.S. Cl. 56—330 15 Claims

A high chassis vehicle adapted to straddle and travel along a row of plants has a catcher floor divided along its longitudinal

center for passing along opposite sides of the plant row. The catcher floor includes two sets of resiliently flexible brushes



which are bridged at the central floor division. Vertically reciprocable plant shakers are provided above the floor.

3,822,538

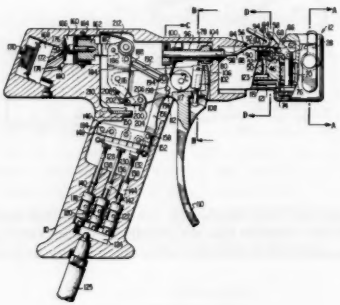
YARN SPLICING APPARATUS

Max L. Cardell, Shelby, N.C., assignor to Fiber Industries, Inc., Charlotte, N.C.

Filed Oct. 31, 1973, Ser. No. 411,581

Int. Cl. D01h *15/00*

U.S. Cl. 57—22 **19 Claims**



An improved yarn splicing apparatus having particular utility in the joining together of undrawn multifilament yarn ends is described which comprises a pair of spaced-yarn clamps, means for drawing and relaxing a yarn segment intermediate said clamps, an air entangling jet for entangling the filaments of the yarns, and means for operating the aforesaid elements in sequence, whereby the two yarn ends are clamped then, drawn to a predetermined ratio and relaxed prior to air entanglement of the filaments.

3,822,539

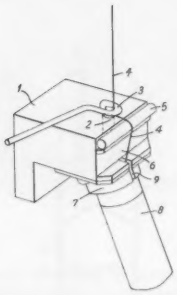
THREADABLE YARN TREATMENT TUBE

Harrison Heap; Robert Reid Coats, and John Michael Greenway, all of Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 24, 1972, Ser. No. 299,800

Int. Cl. G03b *1/56*

U.S. Cl. 57—34 R **1 Claim**



In apparatus comprising a passageway through which an advancing yarn must be threaded, yarn guides and locating means for a suction gun are provided, whereby the yarn may be led close to the passageway entrance and on cutting may be entrained through the passageway into the gun.

3,822,540

DEVICE FOR MECHANICALLY LIFTING COPS ON RING SPINNING AND TWISTING MACHINES

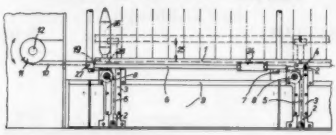
Friedrich Thoma, and Peter Krusche, both of Bremen, Germany, assignors to Fried Krupp Gesellschaft mit beschrankter Haftung, Essen, Germany

Filed Oct. 6, 1972, Ser. No. 295,491

Claims priority, application Germany, Oct. 8, 1971, 2150212

Int. Cl. D01h *9/08*

U.S. Cl. 57—52 **4 Claims**



A device for mechanically lifting cops on ring spinning and twisting machines in which in the longitudinal direction of the spinning machine fork rails are arranged one behind the other and are mounted in forks which are adjustable as to height, the fork rails are provided with lifting means for each of the cops, and the forks are adapted to be raised and lowered by actuating means, for instance, in the form of a gear spindle, chains, draw rods, or reversing means.

3,822,541

OPEN END SPINNING APPARATUS

Fred Croasdale, Whalley, and Raymond Victor Evans, Blackburn, both of England, assignors to Platt International Limited, Oldham, England

Filed Jan. 12, 1973, Ser. No. 322,980

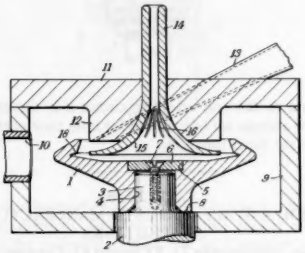
Claims priority, application Great Britain, Jan. 14, 1972, 1903/72

Int. Cl. D01h *1/12*

U.S. Cl. 57—58.89 **12 Claims**

An open end spinning apparatus comprises a hollow spinning rotor which is open at its upper end and closed at its

lower end and which has an inner surface free from apertures and concentric with respect to the rotary axis of the rotor, said inner surface of the rotor having a rotor wall portion which extends from the open upper end of the rotor radially outwardly with respect to the rotor axis and downwardly to a region of maximum diameter at which region there is formed a localized fibre collecting circumferential groove, the diameter of the groove when measured from the base of the groove in a plane



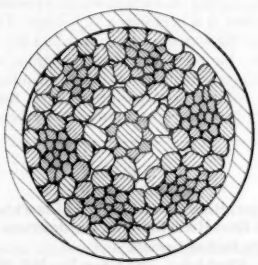
at right angles to the rotary axis of the rotor being at least eleven times greater than the height or mean height of said open upper end above the base of the fibre collecting groove when measured parallel to the axis of the spinning rotor. The lower end or base portion of the rotor may lie in a plane at right angles to the rotor axis or partly in such a plane and partly in a frusto-conical plane. The fibre collecting groove may lie above or below said base portion and may be of any of several radial sections.

3,822,542

SWAGED WIRE ROPE AND METHOD OF MANUFACTURE

John Raymond Naud, Pierrefonds, Quebec, and John H. Simpson, Dollard des Ormeaux, Quebec, both of Canada, assignors to Wire Rope Industries Ltd., Pointe Claire, Quebec, Canada

Filed Aug. 10, 1973, Ser. No. 387,277
Claims priority, application Canada, Aug. 11, 1972, 149288
Int. Cl. D07b *1/06*; D02g *3/36*
U.S. Cl. 57—145 **10 Claims**



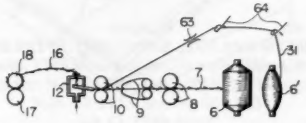
An improved swaged wire rope is produced by winding in a predetermined manner a plurality of strands about a flexible core of greater diameter than that of said strands and swaging the so formed wire rope construction until a smooth, void-free exterior surface of the rope is obtained. The new swaged wire rope is particularly suitable for operations where abrasion, shock loading and general rope abuse are prevalent.

3,822,543

SPUN-LIKE YARN AND METHOD OF MANUFACTURING SAME

Hiroshi Edagawa; Ituo Nakamura, and Kozo Susami, all of Otsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed May 4, 1972, Ser. No. 250,176
Claims priority, application Japan, July 12, 1971, 46-51092
Int. Cl. D02g *1/16, 3/04, 3/36*
U.S. Cl. 57—160 **10 Claims**



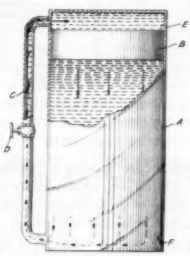
A yarn having soft, attractive handle and a structure such that staple fibers are intertwined with each other to cohere into a substantially non-twist yarn. The yarn is manufactured by supplying a substantially non-twist strand of staple fibers to a fluid treatment zone where the staple fibers are intertwined with each other by the turbulent flow, at least part of said staple fibers to be supplied to the treatment zone having a length larger than the distance L between the fiber grasping point in the fiber feed zone and the point where the intertwinement due to the turbulent flow most effectively occurs.

3,822,544

HYDRAULIC TIMING DEVICE

Thomas Conrad Groves, Box 171-A, R.D. 3, Reynoldsville, Pa. 15851

Filed Aug. 3, 1972, Ser. No. 277,513
Int. Cl. G04b *4/00*; G04f *1/06*
U.S. Cl. 58—2 **8 Claims**



The invention consists of a time measuring device, the operation of which is based on fluid resistance slowing and regulating the motion of a material under force in such a manner that the distance which the material travels can be used as an accurate indication of the amount of time which has elapsed since the motion of that material began.

3,822,545

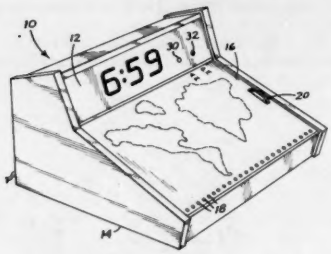
ELECTROMECHANICAL DIGITAL READOUT CLOCK

Kenneth A. Catto, and Harold R. Burt, both of Beaverton, Oreg., assignors to Data Time, Inc., Portland, Oreg.

Continuation of Ser. No. 220,923, Jan. 26, 1972, abandoned.
This application Dec. 22, 1972, Ser. No. 317,735
Int. Cl. G04c *3/00*
U.S. Cl. 58—23 R **10 Claims**

An electromechanical digital readout clock including electrical digital readout devices. The readout devices are

operated by different, periodically closed electrical circuits that are established through contacts (connected to the devices) engaged by conductors carried by a plurality of interengageable, intermittently driven rotors.

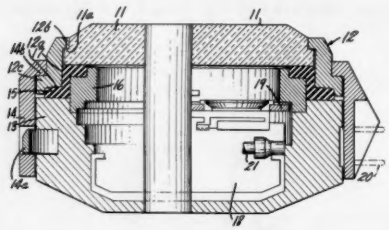


3,822,546

WATERPROOF WATCHCASE

Hideo Nozawa, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Oct. 19, 1973, Ser. No. 408,078
Int. Cl. G04b *37/08*
U.S. Cl. 58—90 R **7 Claims**



A waterproof watchcase having a crystal provided with a peripheral flange resting on an inwardly extending support flange of a highly resilient gasket with which it effects a watertight seal. The gasket rests on a support surface of a back cover with which it effects a watertight seal. The gasket is sandwiched between the peripheral flange of the watch crystal and the back cover by the band of the watchcase which can be constructed as a simple band or a band and bezel. The seals are effected without use of adhesives.

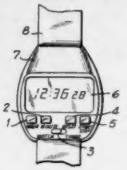
3,822,547

DIGITAL WRIST WATCH HAVING TIMER FUNCTION

Kinji Fujita, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Jan. 22, 1973, Ser. No. 325,697
Claims priority, application Japan, Jan. 22, 1972, 47-8059; Jan. 22, 1972, 47-8060; Jan. 22, 1972, 47-8061
Int. Cl. G04b *37/12, 23/12*
U.S. Cl. 58—152 B **5 Claims**

A digital wrist watch is provided with a quartz oscillator, counting and distribution circuits and a digital electronic display device. The watch is provided with a memory circuit for the performance of a timer function. A switch and selecting circuit is provided for the selective application of either time keeping or timer signals to the display device so that said display device may serve both the time keeping and timer functions. Said switch and selecting circuit also serves to permit the use of a single set of switches for both time correction and setting of the timer function.

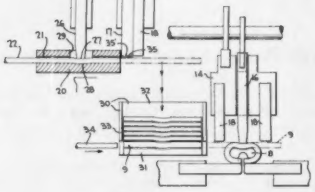


3,822,548

METHOD AND APPARATUS OF MANUFACTURING C-SHAPED LINKS

Paul Esser, Melissenweg 23, 5 Cologne 51, Germany

Filed July 2, 1971, Ser. No. 159,425
Claims priority, application Germany, July 2, 1970, 2032692
Int. Cl. B21l *1/02*
U.S. Cl. 59—27 **6 Claims**



The manufacture of "C" shaped wire links wherein a continuously fed wire has a reverse curve pre-bent into it before the wire is placed into a bending device. This reverse curve is in that section of the wire which will be opposite the two ends of the link after it is bent into a "C" shape. The pre-bending device bends the wire prior to cutting into the desired length. Furthermore, the pre-bent cut wire sections can be directly fed from the pre-bending device into the bending device, or alternatively, fed into a magazine which in turn successively feeds the pre-bent cut wire sections into the bending device.

3,822,549

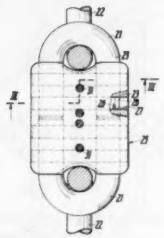
CHAIN COUPLERS

Werner Rieger, Haus Haselbach, 7084 Unterkochen/Wurttemburg, and Hans Horst Dalferth, Haydnstrasse 21, 7083 Wasseralfingen, both of Germany

Filed July 5, 1972, Ser. No. 269,283
Claims priority, application Switzerland, July 5, 1971, 9822/71; Sept. 21, 1971, 13753/71
Int. Cl. F16g *15/04*
U.S. Cl. 59—85 **14 Claims**

This disclosure relates to chain couplers for interconnecting the end links of two chain lengths. The coupler includes two cooperating half links, with each half link having at least one cylindrical leg or shank portion adapted to be inserted within a cylindrical sleeve-like socket of an element fixedly associated

with the cooperating half link. Each cylindrical leg portion has grooves on its opposite sides, which are staggered in the coupling direction, there being correspondingly disposed apertures in the element with the sleeve-like socket, for the receipt of locking pins, which engage in the grooves, to lock



the cylindrical leg portion in the socket in which it has been inserted. The element with the sleeve-like socket may be integral with the cooperating half link or it may be a separate coupling element interposed to interconnect the two cooperating half links.

3,822,550

MULTICYLINDER THERMODYNAMIC RECIPROCATING MACHINE IN WHICH THE FUEL SUPPLY TO BURNER DEVICES IS CONTROLLED BY MEANS OF TEMPERATURE-SENSITIVE ELEMENTS

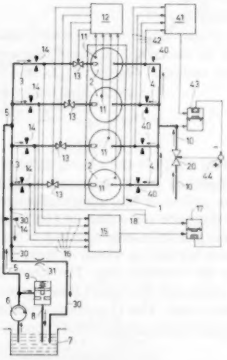
Klaus Brandenburg, Kirchen-Wehbach, and Joachim Kuhlmorgen, Aachen, both of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 234,074, March 13, 1972. This application June 29, 1973, Ser. No. 374,904

Claims priority, application Netherlands, Mar. 18, 1971, 713610

Int. Cl. F03g *7/06*

U.S. Cl. 60—24 **11 Claims**



A multicylinder thermodynamic reciprocating machine in which a fuel supply and a supply for air of combustion communicate with each burner device, in which the ends of the fuel supplies remote from the associated burner device communicate with a common fuel supply duct in which a pressure control device during operation maintains a constant pressure and the ends of the supplies for air of combustion remote from the associated burner device communicate with a common supply duct for air of combustion, in which, taken in the direction of flow, a flow restricting element and a fuel control mechanism are incorporated in each fuel supply, in which a selecting device for the automatic selection of the maximum or minimum fuel pressure from several fuel inlet pressures is present and the outlet sides of the flow restricting elements communicate with the same number of inlets of the selecting device, the pressure differential between the constant fuel pressure in the common fuel supply duct and the selected maximum or minimum fuel pressure influencing a control member which actuates a control mechanism for air of combustion in the common supply duct for air of combustion.

3,822,551

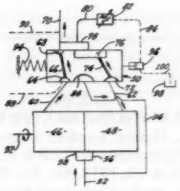
NOISE REDUCTION APPARATUS AND METHOD

Fred T. Smith, 1745 Stonewall Dr., Newark, Ohio 43055

Division of Ser. No. 274,798, July 24, 1972. This application Sept. 27, 1973, Ser. No. 401,222

Int. Cl. F16h *39/48*

U.S. Cl. 60—428 **8 Claims**



An apparatus and method for operating an auxiliary hydraulic load at low noise levels. A pump having a capacity which is sufficiently large to supply the load with the necessary volume of hydraulic fluid at relatively low pump speeds is driven by an engine operating at a speed near its idling speed. Throttle control means control the fuel supply to the engine at a level sufficient to drive the pump while maintaining the engine speed near its idling speed. When the engine speed is increased to a predetermined level in excess of its idling speed, means are provided to maintain the output from the pump at or below a predetermined flow rate to not overload the pump means or the auxiliary load. The pump may include a variable displacement pump or a plurality of fixed displacement pumps with means to vary the pump output in response to the pressure demand from the auxiliary load to maintain the torque input requirements for the pump below a predetermined level. The throttle control means may be actuated in response to the pressure demands of the auxiliary load to vary the torque from the engine in response to the torque input required for operation of the pump while the engine is operating at a speed near its idling speed.

3,822,552

PIPE CONFIGURATION FOR HOT GAS ENGINE

Jan Ragnar Palmgren, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden

Filed Mar. 15, 1973, Ser. No. 341,378

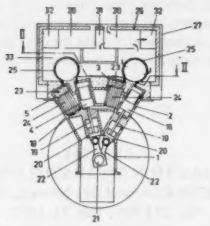
Claims priority, application Great Britain, Apr. 27, 1972, 19509/72

Int. Cl. F02g *1/04*

U.S. Cl. 60—517 **7 Claims**

A Stirling cycle type hot gas engine passes working gas from cylinders to regenerators through pipes which are exposed to

heated combustion gases. These pipes are arcuately shaped and disposed with centers along a common horizontal straight line to permit placing a combustion chamber at the end for directing the combustion gases along the line.



3,822,553

HOT GAS ENGINE HEATER HEADS

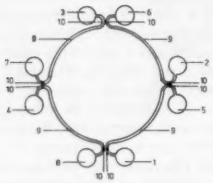
Per Goran Grahn, Malmo, Sweden, assignor to Kommanditbolaget United Stirling (Sweden) AB & Co., Malmo, Sweden

Filed Aug. 15, 1973, Ser. No. 388,563

Claims priority, application Great Britain, Aug. 22, 1972, 38971/72

Int. Cl. F03g 7/06; F25b 9/00

U.S. Cl. 60—517 2 Claims



Four pairs of manifolds of the heater head have four corresponding pipes disposed in 90° segments of a circle with the ends bent more than 90° to connect with the manifolds. This configuration provides improved engine efficiency by uniform heating and shielding of the manifolds from the most intensive radiation and convection by parts of the pipes disposed between the manifolds and the center of the heater head.

3,822,554

HEAT ENGINE

Frederick Griffin Kelly, 2 Viking Rd., Dalkeith, Australia (6009)

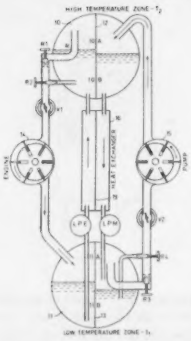
Filed June 19, 1973, Ser. No. 371,519

Claims priority, application Australia, June 26, 1972, 9461/72

Int. Cl. F01k 23/02

U.S. Cl. 60—655 9 Claims

A heat engine operating between temperatures T1 (low) and T2 (high) includes separate vapour closed-cycle motor and pump systems, in heat-exchange relation at T1 and T2,



and means for heat-exchange between the condensates of said systems.

3,822,555

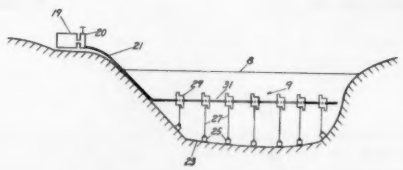
MARINA PROTECTIVE WAVE BREAKER

L. C. Strawn, P.O. Box 1145, and Vernon W. Stanton, Sr., P.O. Box 693, both of Tucumcari, N. Mex. 88401

Filed Mar. 12, 1973, Ser. No. 340,098

Int. Cl. E02b 3/04

U.S. Cl. 61—6 7 Claims



A simplified air burst wave breaker for the protection against wave action of Marina installations and the like. The air burst unit comprises a duct in the form of two vertical U portions arranged with their openings toward each other, having a common leg and in which at least the bottom free leg is longer than the common leg. The lower free leg provides a water inlet stem and the upper free leg provides the air burst or burp outlet stem. The U portion open at the bottom an air inlet connection in the upper bend thereof.

3,822,556

METHOD OF LAYING WIDE ASPHALTIC OPEN MESH REINFORCED STRIPS

Arnaud Cramwinckel, Laren, and Rudolf Carlo Reintjes, De Bilt, both of Netherlands, assignors to Bitumarin N.V., Zaltbommel, Netherlands

Filed Jan. 7, 1972, Ser. No. 216,039

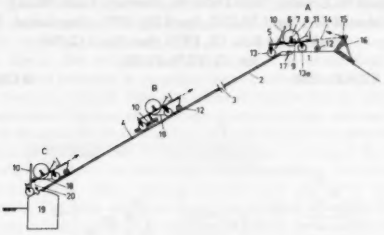
Claims priority, application Netherlands, Feb. 4, 1971, 7101469

Int. Cl. E02b 3/12; E01c 23/03

U.S. Cl. 61—38 12 Claims

A water retaining earth surface is lined with a reinforced

layer of asphalt in which a unilaterally externally reinforced wide strip of asphaltic mastic wound onto a reel is unwound



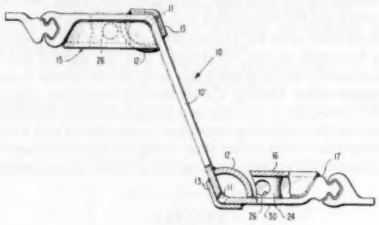
onto the surface to be lined in such a way that the reinforced surface faces earth surface.

3,822,557

JET SHEET AND CIRCULAR PILE WITH WATER HAMMER ASSIST

Leonard L. Frederick, 15 Crestview Ter., Whippany, N.J. 07981

Filed Sept. 29, 1972, Ser. No. 293,444
Int. Cl. E02d *5/00, 5/04*
U.S. Cl. 61—53 **15 Claims**



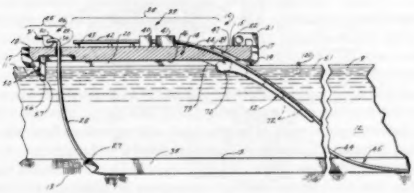
The invention relates to a system of furnishing a supply of lubricant to the opposed sides of a section of piling and a movable drive shoe carried thereby to facilitate the driving of the piling in any type of earthen strata.

3,822,558

ARCTIC DREDGING AND PIPELAYING

Owen D. Blankenship, Houston, Tex., assignor to Global Marine Inc., Los Angeles, Calif.

Filed July 28, 1972, Ser. No. 276,110
Int. Cl. F16l *1/00;* **B63b** *35/04*
U.S. Cl. 61—72.1 **11 Claims**



Apparatus for arctic dredging and marine pipelaying during ice-free and iced conditions is described. For dredging, a dredging facility is carried on a buoyant platform which is adapted for support on a cushion of air. The dredging facility includes a dredging head which is operable, when engaged with the bed of a body of water to be dredged, for removing material from the bed. A dredgings conductor tube is connectible between the dredging head and the platform for conducting dredged material from the head to the platform. The dredging equipment also includes means carried by the platform for forming a channel through a layer of ice below the platform for passage of the conductor tube through the ice when the dredging apparatus is operated during iced conditions.

The pipelaying equipment includes a pipelaying facility carried by a buoyant platform, which is adapted for support on a cushion of air. The pipelaying equipment includes means carried by the platform operable for forming through an ice layer below the platform a channel through which pipe may be laid from the platform to the bed of the body of water across which the pipeline is to be laid. The portion of the pipeline which extends between the platform and the bed of the body of water is supported along at least a portion of its length adjacent the pipelaying platform. This support of the pipeline may be provided by a stinger assembly coupled to the platform with its upper end disposed within the area of air cushion support of the platform.

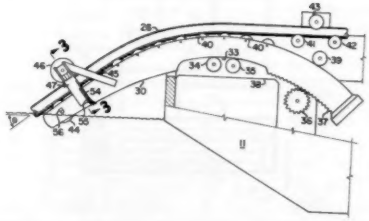
The dredging apparatus and the pipelaying apparatus may be provided on a common buoyant platform adapted for support on a cushion of air. In such case, the dredging facility is located on the platform forward of the pipelaying facility so that, during pipelaying operations through ice, pipe is laid through the channel formed in the ice for the dredgings conductor tube.

3,822,559

CONTROLLED YIELD STINGER

Jamie F. Matthews, Jr., Houston, Tex., and Martin O. Pattison, Palos Verdes Estates, Calif., assignors to Esso Production Research Company, Houston, Tex.

Filed Jan. 29, 1973, Ser. No. 327,272
Int. Cl. F16l *1/00;* **B21b** *23/00*
U.S. Cl. 61—72.3 **15 Claims**

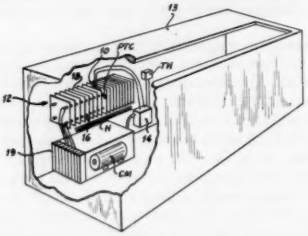


A marine pipeline is laid by lowering the line into place over a retractable curved stinger which is mounted on the vessel and extends over its stern. The curved stinger is provided with rollers or similar members which are mounted at spaced intervals along an arc having a radius of curvature sufficiently small to exceed the elastic limit of the pipe as the pipeline moves over the rollers and with straightening means near the outer end of the apparatus. By extending or retracting the curved stinger, the angle of departure of the pipe as it leaves the vessel and enters the water can be varied.

3,822,560
DEFROST SENSOR AND CONTROL CIRCUIT

James E. Hansen, Oak Creek, and Joel P. La Pointe, Mequon, both of Wis., assignors to Cutter-Hammer, Inc., Milwaukee, Wis.

Filed Sept. 29, 1972, Ser. No. 293,452
Int. Cl. F25d *21/02*
U.S. Cl. 62—140 9 Claims

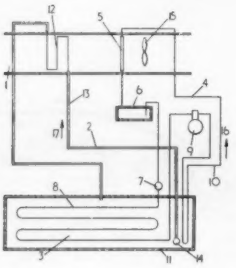


An apparatus for regulating frost buildup in a refrigeration apparatus. A photocell and lamp are mounted to function within an open housing having essentially non-reflective interior wall surfaces. The housing is located adjacent the refrigeration apparatus permitting cold air to circulate therethrough and allow frost buildup on such surfaces. As front forms thereon, illuminance intensity of the lamp light within the housing increases due to the light scattering characteristics of the frost causing the photocell to function to initiate the defrost cycle.

3,822,561
SELF CONTAINED AIR COOLING UNIT

Allan Sinclair Miller, Dinedor, Hereford, England, assignor to Denco Miller Limited, Hereford, England

Filed Dec. 13, 1972, Ser. No. 314,844
Claims priority, application Great Britain, Apr. 14, 1972, 17239/72
Int. Cl. G05d *23/32*
U.S. Cl. 62—157 9 Claims

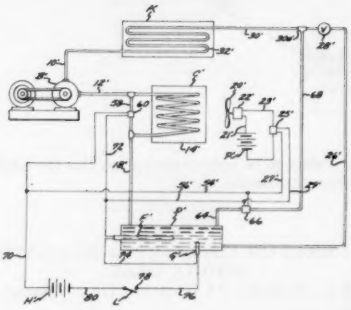


A self contained air cooling unit, comprising: a refrigeration circuit, the condensing system of which is located in the space to be cooled; a thermal reservoir consisting of an ice bank contained in a flexible tank and in heat exchange relationship with the cooling system of the refrigeration circuit, a circulating system in communication with the ice bank and including a heat exchanger located in the space to be cooled for exchanging heat from the air in the space to chilled water circulated through the heat exchanger from the ice bank by means of a pump, a fan for circulating air in the space both through the heat exchanger and through the condensing system of the refrigeration circuit; and means for selectively and alternatively operating the refrigeration circuit and the circulating system to heat or to cool the space as desired.

3,822,562
REFRIGERATION APPARATUS, INCLUDING DEFROSTING MEANS

Millard W. Crosby, 7050 Pellet St., Downey, Calif. 90241

Division of Ser. No. 138,232, April 28, 1971, abandoned. This application Feb. 12, 1973, Ser. No. 332,041
Int. Cl. F25b *41/00*
U.S. Cl. 62—196 4 Claims

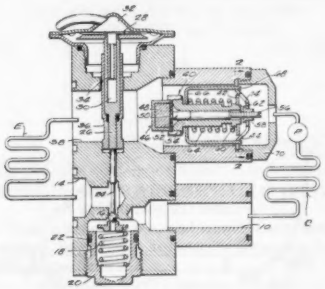


A mechanical refrigeration system that includes improved means for defrosting the evaporator coils to remove excessive accumulations of frost and ice therefrom. Frost and ice is removed from the evaporator coils by heating means provided in the receiver with the compressed gas from the compressor being bypassed by the condenser, and the heated gas then being directed to the evaporator coils down stream from the expansion valve. During the defrosting operation, the compressor continues to operate in a normal manner, but with the gas during the defrosting operation being heated as it forms in the evaporator coils rather than being cooled as occurs when the refrigeration equipment is operated in the normal manner.

3,822,563
REFRIGERATION SYSTEM INCORPORATING TEMPERATURE RESPONSIVE WAX ELEMENT VALVE CONTROLLING EVAPORATOR OUTLET TEMPERATURE

Charles D. Orth, Cedarburg, Wis., assignor to Controls Company of America, Schiller Park, Ill.

Filed Apr. 25, 1973, Ser. No. 354,234
Int. Cl. F25b *41/00*
U.S. Cl. 62—217 8 Claims



The compressor provides hot refrigerant gas to the condenser and flow from the condenser to the evaporator is regulated by the thermostatic expansion valve, the sensing point of

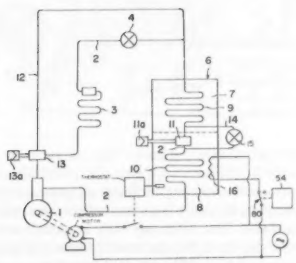
which is located in the return line betweeen the evaporator outlet and the wax element actuated suction line valve. A wax element actuated suction line valve is incorporated in the refrigeration system to respond to evaporator outlet temperature and thereby maintain evaporator temperature above a value which would permit frost accumulation on the evaporator. Since the evaporator temperature is controlled, the evaporator pressure is, to some lesser extent, controlled since the two are related. The wax element motor has an inherent temperature lag due to the thermal inertia of the wax and this tends to smooth out or stabilize the system and thus prevent or minimize hunting. The valve remains open as long as the temperature is above the set temperature regardless how low the pressure falls. This, then, enhances fast pulldown of the system. The wax element must be located completely upstream of the valve so as to be unaffected by refrigerant expansion as the valve throttles flow. Thus the wax element is located totally within the temperature to be sensed. In the principal embodiment the valve member is carried directly by the wax element housing and cooperates with the seat which also supports the spider or yoke supporting and guiding the wax element. Another variation incorporates a bellows assembly which functions to seal the wax element from the refrigerant and thus prevent any adverse effect on the elastomers normally incorporated in the wax element motor. In some cases there is no elastomer incorporated in the design with the bellows functioning to contain the wax medium while permitting flexure and, hence, operation of the valve.

3,822,564

COMBINATION TYPE REFRIGERATOR

Kiyoichi Nijo, Osaka, Japan, assignor to Naniwa Sangyo Kabushikigaisha, Osaka-City, Japan

Filed Aug. 1, 1972, Ser. No. 276,954
Int. Cl. F25d *21/06*
U.S. Cl. 62—156 **4 Claims**



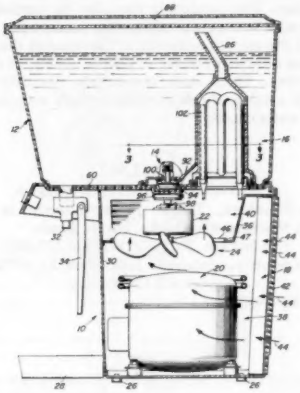
A combination type refrigerator having a freezing storage compartment provided with a heat exchanger and a cold storage compartment also provided with a heat exchanger, wherein a cooler is on-off controlled in response to the detection of a certain predetermined temperature in the cold storage compartment and the defrosting of the freezing storage compartment is e..ected by connecting both the heat exchangers in series and directly supplying pressurized hot gas to the heat exchanger for the freezing storage compartment. It is characterized by a heating means disposed in a suitable position within the cold storage compartment, and which heating means is capable of generating an amount of heat just sufficient to permit continuous operation of the cooler without causing any temperature rise in the cold storage compartment during the defrosting operation in the freezing storage compartment and is operated during the defrosting operation in the storage compartment.

3,822,565

BEVERAGE DISPENSER

William A. Arzberger, Medfield, Mass., assignor to Jet Spray Cooler, Inc., Waltham, Mass.

Filed June 19, 1972, Ser. No. 263,783
Int. Cl. B67d *5/62*
U.S. Cl. 62—392 **14 Claims**



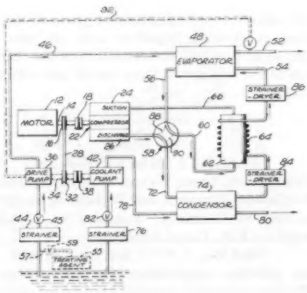
A refrigerated beverage dispenser having a base and a beverage bowl on the base. A pump in the bowl circulates the beverage in the bowl, and the pump is magnetically driven by a motor in the base. A refrigeration system includes an evaporator within the bowl having a prime surface exposed to the beverage circulated by the pump for cooling the beverage. The condenser and compressor of the refrigeration system are in the base, and a fan driven by the same motor which drives the pump circulates air through the base for cooling the condensor, compressor and motor.

3,822,566

PORTABLE UTILITY SYSTEM

Alvin Lowi, Jr., 2146 Toscanini Dr., San Pedro, Calif. 90732

Filed July 13, 1972, Ser. No. 271,457
Int. Cl. F25d *17/02*
U.S. Cl. 62—435 **4 Claims**



A portable utility system particularly useful for drastically cooling seawater and/or forming an ice/brine slurry for application to fish. A tube-in-tube evaporator is provided for cooling the seawater while it is drawn into the evaporator by means of a positive displacement brine pump. Seawater is drawn into a tube-in-tube condenser by a coolant pump to remove heat from the system refrigerant and is continuously

discharged after it is passed through the condenser coils. A compressor is provided to raise the pressure and temperature of the gaseous refrigerant. A reversible valve enables the flow of refrigerant through the system to be reversed, producing hot water at the output of the evaporator, when desired. The evaporator is formed of a first tube for conveying refrigerant and a second tube positioned in heat exchange relation within the first tube, the second tube conveying seawater to be refrigerated. The condenser may also be formed of a tube within a tube wherein the refrigerant is conveyed in the inner tube and the cooling seawater is conveyed in the outer tube. An in-line dispenser for bacteriostatic agents, or the like, can be provided. The system can supply electrical as well as hydraulic needs and can be used onshore with air cooling in place of water cooling.

3,822,567

REFRIGERATING APPARATUS

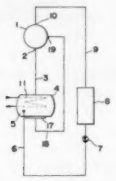
Keisuko Kasahara, Tokyo, Japan, assignor to Kabushiki Kaisha Maekawa Seisakusho, Tokyo, Japan

Filed Jan. 26, 1973, Ser. No. 327,102

Claims priority, application Japan, Feb. 21, 1972, 47-17822

Int. Cl. F25b *43/02*

U.S. Cl. 62—473 **5 Claims**



This invention relates to a refrigerating apparatus.

Said apparatus comprises a compressor of the oil injection system, a condenser containing a liquid refrigerant, a line connecting an outlet port of said compressor to said condenser, an evaporator, a line connecting an upper portion of a liquid sump in said condenser to said evaporator, a line connecting said evaporator to a suction port of said compressor, an oil sump formed in a bottom portion of said condenser, and a line connecting said oil sump to an oil injection port of said compressor.

Said refrigerant in a high pressure gaseous state from said compressor is injected together with oil into said liquid refrigerant so as to effect condensation of the refrigerant gas, separation of the refrigerant from the oil and cooling of the oil in said condenser.

3,822,568

FLEXIBLE SHAFT COUPLING

Heinz-Dieter Bohm, Unna; Werner Ruggen, Holzwickede; Herbert Krellmann, Rhynern, and Wilhelm Schluckebier, Unna-Uelzen, all of Germany, assignors to Maschinenfabrik Stromag G.m.b.H., Unna, Germany

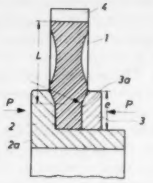
Filed May 7, 1971, Ser. No. 141,048

Claims priority, application Germany, May 8, 1970, 2022527

Int. Cl. F16d *3/18*

U.S. Cl. 64—11 R **7 Claims**

A flexible shaft coupling including a pair of coupling members of which one is provided with a coupling flange, a substantially disc-shaped torque-transmitting member of a resilient or rubber-like material for transmitting torques from one of said pair of coupling members to the other, and clamping means for clamping a zone of said torque-transmitting member against said clamping flange. The coupling is provided with means for causing a progressive decrease of the



coefficient of friction between said torque-transmitting member, said clamping flange and said clamping means in radial direction.

3,822,569

SET INCLUDING FIVE DISTINCT ELEMENTS BASED ON A HOLLOW CUBE

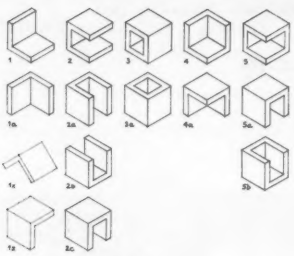
Knud Lautrup-Larsen, 144 Naerumvaenge, DK-2850 Naerum, Denmark

Filed Dec. 12, 1972, Ser. No. 314,459

Claims priority, application Denmark, Dec. 13, 1971, 6067/71

Int. Cl. A63h *33/06*

U.S. Cl. 46—24 **2 Claims**



A set of five different toy building elements, each of which is formed as two, three or four mutually connected side walls of a hollow cube. The elements may be combined with each other or with duplicate blocks in rectilinearly aligned relation to form a total of 977 different configurations of pairs of elements.

3,822,570

CONNECTION OF RESILIENTLY DEFORMABLE SEALING MEMBERS TO GENERALLY CYLINDRICAL ARTICLES

Leslie George Fisher, Birmingham, England, assignor to GKN Transmissions Limited, Birmingham, England

Filed Aug. 14, 1972, Ser. No. 280,127

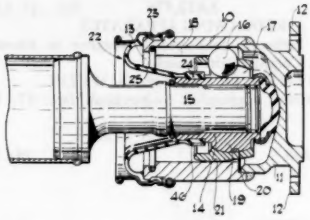
Claims priority, application Great Britain, Aug. 14, 1971, 38236/71

Int. Cl. F16d *3/84*

U.S. Cl. 64—32 R **3 Claims**

A universal joint comprising an open-ended outer member, an inner member movable universally therein and coupled thereto by torque transmitting balls, the open end of the outer member being closed by a sealing member of resilient material having a sleeve-like attachment portion embracing the outer member adjacent to its open end and itself embraced exter-

nally by a metal sleeve which has a terminal portion projecting axially beyond the attachment portion of the sealing member, with the terminal portion deformed radially inwardly over a



ring seated in a circumferential groove in the outer member, so as to interlock the metal sleeve with the outer member and prevent its axial withdrawal therefrom.

3,822,571

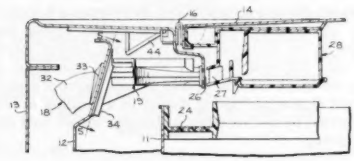
LIQUID DIVERTER SYSTEM FOR AN AUTOMATIC WASHING MACHINE

Richard A. Waugh, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Jan. 8, 1973, Ser. No. 321,743

Int. Cl. D06f *39/02*

U.S. Cl. 68—17 R **5 Claims**



A liquid diverter for use with an additive dispenser system of an automatic fabric washing machine. The diverter includes an inlet for receiving liquid and a pair of outlet nozzles one of which is disposed for normally delivering liquid into the machine tub during a fill operation, the other inlet being disposed to deliver liquid to a treating agent dispenser. The diverter is provided with valving means which, under control of the machine sequence controller, diverts the flow of liquid from the machine wash tub to the dispenser for flushing treating agent out of the dispenser.

3,822,572

METHOD OF SURFACE TREATING DISCONTINUOUS SHEET MATERIALS

Vladislav Janirek, Gottwaldov; Zdenek Miculka, Oktrokovice, and Jan Duba, Halenkovice, all of Czechoslovakia, assignors to Statni vyzkummy ustav kozedelny, Gottwaldova, Czechoslovakia

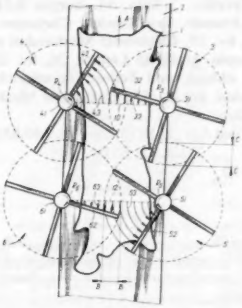
Filed May 31, 1973, Ser. No. 365,575

Claims priority, application Czechoslovakia, July 13, 1972, 4958-72

Int. Cl. C14b *1/14*

U.S. Cl. 69—39 **7 Claims**

Method and apparatus for treating discontinuous sheets such as animal hides. The hide is placed on a moving conveyor. At least one pair of elements are arranged to rotate above the conveyor and in a horizontal plane with respect to it. The elements are arranged on axes which are in tandem along the edge of the conveyor and the elements are moved to engage the hide in a sector of a circle the beginning of which



lies along a line normal to the direction of movement of the conveyor and has a path extending arcuately to the peripheral edge of the conveyor. The elements at the front of the conveyor rotating in the direction of movement of the conveyor while that in the rear in the opposite direction.

3,822,573

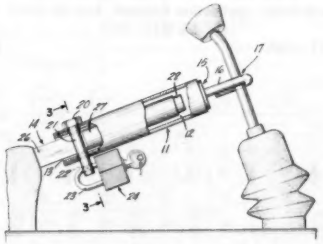
APPARATUS FOR LOCKING GEAR SHIFT STICK AND HANDBRAKE LEVER OF A MOTOR VEHICLE

Calvin E. Meyers, Freeport, N.Y., assignor to Bug-Lok Corporation, Freeport, N.Y.

Filed Mar. 22, 1973, Ser. No. 343,689

Int. Cl. B60r *25/06, 25/08*

U.S. Cl. 70—200 **4 Claims**



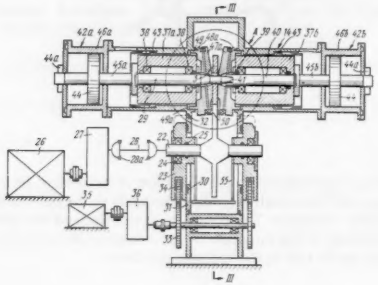
An apparatus for locking the gear shift stick and handbrake lever of a motor vehicle. The apparatus is a cylindrical body having a bore therein terminating in an open end which fits over the handbrake lever. The open end of the body holds a bolt which can be locked therein by a padlock and which abuts an enlarged portion of the handbrake lever preventing removal of the body therefrom. The other end of the body has a hook-shaped gripping member which simultaneously tightly holds a portion of the gear shift stick.

3,822,574

RING-ROLLING MILL

Alexandr Vasilievich Krupin, Valovaya ulitsa, 22/44, kv. 47; Valentin Fedorovich Roschin, Novo-Peschanaya ulitsa, 21, kv. 7; Leonid Petrovich Alekhin, Nagatinskaya naberezhnaya, 18, kv. 174; Valery Mikhailovich Izotov, ulitsa Akademika Pavlova, 40, kv. 117; Oleg Alexandrovich Burov, Otkrytoe shosse 27, korpus 1, kv. 6; Viktor Mikhailovich Gavrilov, 3 linia, 11, korpus 1, kv. 41, all of Moscow; Alexandr Ermolaevich Chekanov, ulitsa Zhulyabina, 10, kv. 25, Elektrostal Moskovskoi oblasti; Viktor Petrovich Lepin, prospekt Lenina, 26, kv. 23, Elektrostal Moskovskoi oblasti, and Fedor Terentievich Vinogradov, ulitsa Pushkina, 4a, kv. 13, Elektrostal Moskovskoi oblast, all of U.S.S.R.

Filed Apr. 2, 1973, Ser. No. 346,886
Int. Cl. B21h *1/06*
U.S. Cl. 72—110 7 Claims



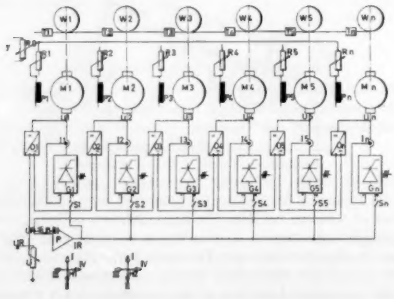
A rolling mill comprising a driven outside and a not-driven inside rolls adapted for radial reduction of the ring being rolled, and face rolls adapted for maintaining a constant dimension as to the height of the ring being rolled with the face rolls being made as conical rings and located so that their interiors accommodate the not-driven roll. The pivotal axes of the face rolls are arranged at an angle to that of the inside roll.

3,822,575

NON-SLIP NON-ACCUMULATING CONTINUOUS WIRE DRAWING MACHINE

Luc Hoorelbeke, Kortrijk, Belgium, assignor to N. V. Bekaert S.A., Zwevegem, Belgium

Filed July 14, 1972, Ser. No. 271,724
Claims priority, application Belgium, July 16, 1971, 770100
Int. Cl. B21c *1/12*
U.S. Cl. 72—288 4 Claims



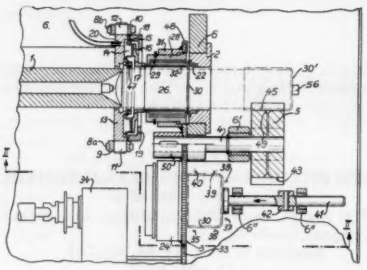
A wire drawing machine has a plurality of drawing dies each associated with a drawing block powered by a direct current electric motor, all the motors being connected in parallel and having current supply controlling circuitry which insures that the sum of all of the motor speeds are constant and that all torques are equal except for a proportionality factor.

3,822,576

REDRAWING APPARATUS

Jean Hardt, Fribourg, Switzerland, assignor to Aluminum Suisse S.A., Chippis, Switzerland

Filed Dec. 14, 1972, Ser. No. 315,228
Claims priority, application Switzerland, Dec. 17, 1971, 18537/71
Int. Cl. B21d *22/28, 43/05*
U.S. Cl. 72—348 15 Claims



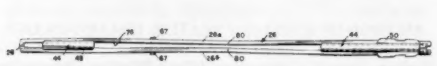
An apparatus for redrawing cup-shaped blanks comprises an indexed rotary platform including members for receiving blanks and conveying them to a redrawing station comprising a redrawing die and a punch, said members each including a tubular cylindrical blank-clamping piece axially slidably mounted in the platform. The redrawing station includes a pusher unit disposed coaxially about said punch for axially pushing the blank-clamping piece of each member successively located at said redrawing station to a position in which a blank carried by said member is clamped against said die during redrawing.

3,822,577

METHOD FOR MAKING UNIVERSAL BLADE CONSTRUCTION

Harry W. Roberts, Merrick, N.Y., assignor to Pylon Manufacturing Corporation, Ft. Lauderdale, Fla.

Division of Ser. No. 197,776, Nov. 11, 1971. This application June 6, 1973, Ser. No. 367,245
Int. Cl. B21d *53/88*
U.S. Cl. 72—379 4 Claims



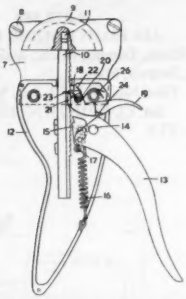
A universal blade construction adapted to fit windshield wipers having yokes with different width dimensions between the blade-straddling claws that retain the blade construction. The blade construction includes a backing strip providing a longitudinal slot-like opening formed by a pair of substantially parallel side rails which are upset at the centers inwardly of the center line of each said rail to cause a lateral bowing effect between the center and each end, whereby the blade construction will fit snugly in between claws of different widths.

3,822,578

PIPE BENDING DEVICES

Leslie Arthur Le Breton, Preston Ln., Marston Dr., Maidstone, England

Filed Jan. 24, 1973, Ser. No. 326,336
Int. Cl. B21d 7/06
U.S. Cl. 72—389 1 Claim



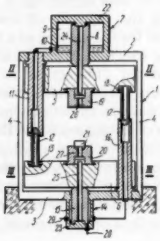
A pipe bending device is disclosed having a pair of abutments and a ratchet operated anvil arranged to be advanced between the abutments to bend a pipe. The ratchet is manually operated. A spring loaded latch mechanism is provided and includes a lever pivoted on the body, a ratchet pawl pivoted to the end of the lever and the lever being releasably engageable with the manual operating means to allow the lever and pawl to be held out of engagement with the ratchet so that the anvil can be retracted.

3,822,579

HIGH-SPEED COUNTERSTROKE HAMMER

Vadim Grigorievich Kononenko, ulitsa chkalova, 15, kv. 12; Igor Grigorievich Fedosenko, 602 mikroraion dom 51, kv. 206, and Anatoly Stepanovich Chernyavsky, ulitsa Chkalova, 15, all of Kharkov, U.S.S.R.

Filed Oct. 24, 1972, Ser. No. 300,238
Int. Cl. B21j 9/12
U.S. Cl. 72—407 2 Claims



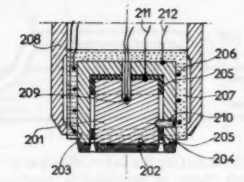
A hammer is disclosed having crossbars with actuating tools secured thereto, which effect a counterstroke under the action of two coaxial power cylinders mounted on relevant cross-beams of the hammer frame. The top crossbar is returned into the initial position under the action of hydraulic cylinders, mounted on the bottom crossbeam and having a connection through hydraulic means with the bottom power cylinder, while the bottom crossbar is under the action of air-hydraulic cylinders mounted on the top cross-beam and having a connection through hydraulic means with the top power cylinder made as an air-hydraulic receiver.

3,822,580

APPARATUS FOR THE MEASUREMENT OF HEAT EXTRACTION COEFFICIENTS

Jean F. Jamet, Janvry, and Daniel L. Balageas, Vincennes, both of France, assignors to Office National d'Etudes et de Recherches Aerospatiales, Chatillon-sous-Bagneux, France

Filed Dec. 13, 1971, Ser. No. 207,219
Int. Cl. G01h 25/00
U.S. Cl. 73—15 R 2 Claims



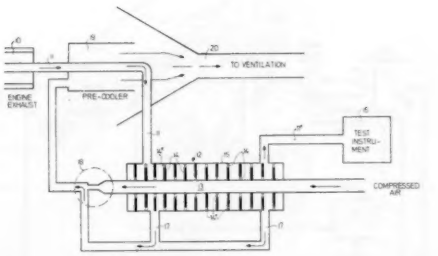
The apparatus includes a feeler constituted by two masses of good heat-conducting metal of which the central mass is called a measuring mass and the other mass is a protective mass surrounding the former mass at a short distance. The two masses are separated by a thin layer of a heat insulating medium. Each mass has a contact surface with the body to be measured. The contact surfaces are situated on a same continuous surface of measuring means for the temperature of the measuring mass. Means for measuring the difference in temperature of the two masses and electrical heating means surrounding the protective mass, are provided. Automatic controls can be included. The apparatus is useful for non-destructive testing.

3,822,581

AUTOMOTIVE ENGINE EXHAUST GAS COMPOSITION SENSING APPARATUS

Franz Hauck, Denkendorf, and Joachim Poppel, Reichenbach, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 22, 1973, Ser. No. 334,925
Claims priority, application Germany, Mar. 30, 1972, 2215641
Int. Cl. G01m 15/00
U.S. Cl. 73—23 4 Claims

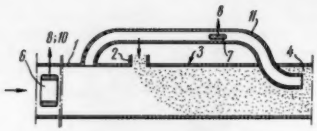


To prevent dirt, moisture, and other contamination present in the exhaust gases from automotive engines to reach sensitive sensing elements of exhaust gas sensing apparatus, a thermal condensing-type separator is interposed in the gas flow from the exhaust of the internal combustion engine to the sensing element, preferably cooled by compressed air which is additionally utilized to suck off precipitated, or separated contamination from the separating device, and to maintain a pressure differential of the contamination separated from the exhaust gases to provide for self-cleaning of the separator.

3,822,582
DEVICE FOR MEASURING THE CONCENTRATION OF SUSPENDED PARTICLES

Vulf Borisovich Etkin, Vostochnaya ulitsa, 1/7, korp. 1, kv. 60, Moscow, U.S.S.R.

Filed Oct. 4, 1972, Ser. No. 294,876
Int. Cl. G01n *15/06*
U.S. Cl. 73—28 **3 Claims**

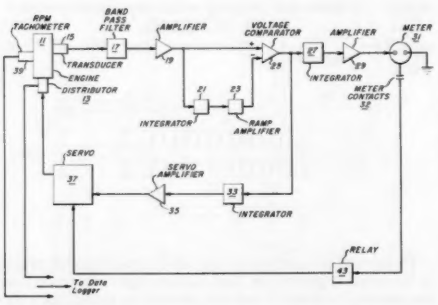


A device for measuring the concentration of suspended particles in which there is provided a pipeline wherein the suspended particles are transported pneumatically, with the pipeline being equipped with an element for introduction of these particles. An additional pipeline is located relatively to the principal pipeline so that one of its ends, being the outlet end with respect to the direction of flow of the carrier fluid, is disposed in the region of velocity stabilization of the suspended particles on the measuring portion confined by this region and the element for introduction of particles, and the other end is located outside the said measuring portion in the region free of particles transported in suspension. The principal pipeline contains a parametric converter of the parameter characterizing the mass flow rate of carrier fluid, and the additional pipeline in which only the carrier fluid flows contains a parametric converter, characterizing the mass flow rate of suspended particles, with the magnitude of the signals from the parametric converters being used to determine the concentration of the suspended particles.

3,822,583
METHOD FOR DETERMINING OCTANE RATINGS OF FUELS UNDER ROAD CONDITIONS

Billy D. Keller, Valparaiso, Ind.; Irwin Ginsburgh, Morton Grove, and Lawrence T. Wright, Homewood, both of Ill., assignors to Standard Oil Company, Chicago, Ill.

Filed Nov. 30, 1972, Ser. No. 310,690
Int. Cl. G01l *23/22*; **G01n** *33/22*
U.S. Cl. 73—35 **12 Claims**

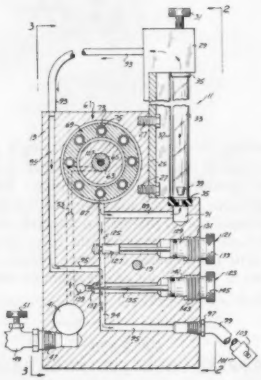


Method and apparatus for detecting engine knock and measuring octane ratings of petroleum fuels in automotive engines and of measuring octane number requirements of said engines. Method and apparatus are herein described for maintaining a controlled knock condition in an internal combustion engine throughout a controlled acceleration of said engine by using a portion of the electrical output of at least one sensor device contacting said engine suitably processed to be proportional to the knock signal to control a servo device operating the spark timing for use in Modified borderline and Modified Uniontown knock rating. In octane number requirements work the signal is used to indicate the occurence of knock.

3,822,584
AIR FLOW GAGING DEVICE

William A. Minix, Detroit, Mich., assignor to Freeland Gauge Company, Detroit, Mich.

Filed Nov. 9, 1972, Ser. No. 305,145
Int. Cl. G01b *13/10*; **G01m** *3/26*
U.S. Cl. 73—37.9 **8 Claims**



An air flow device for gaging bores or the predetermined dimension of a part wherein air leakage from a gage element within said bore or relative to such part is visibly measured and compared with air leakage of said gage element within a predetermined master bore or part of predetermined dimension thus, providing a range for the selection or rejection of work pieces. The air flow device has a valve body with an intake chamber for the delivery of low pressure air to and through an air tube for the moving of a float therein, as well as a delivery passage which receives the air flowing through said air tube adapted for connection to air gage tooling. A manifold within the valve body is connected to a source of high pressure air and has an outlet which connects to the high pressure chamber of an automatic air flow control device. The air flow control device includes a cylinder and a spring biased piston which define a low pressure chamber which communicates with said intake chamber and with a needle valve nested in said high pressure chamber engaged by said piston for determining air flow of low pressure from said cylinder.

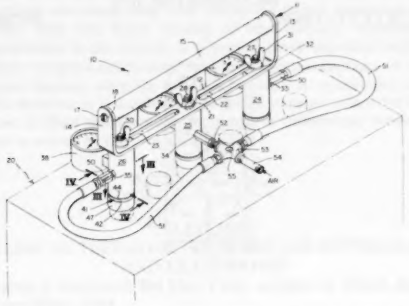
3,822,585
LEAK TESTER FOR BATTERIES

Henry Toback, New Ringgold, Pa., assignor to General Battery Corporation, Reading, Pa.

Filed Sept. 5, 1972, Ser. No. 286,067
Int. Cl. G01m *3/26*
U.S. Cl. 73—49.2 **9 Claims**

A device is provided, for testing batteries for leaks, preferably adapted for the testing of batteries in a "dry" condition, prior to introduction of liquid (acid) thereinto. The device is adapted to be engaged and applied to a battery, with inlets disposed over cell openings of a plurality of cells of the

battery, with gas (generally compressed air) being provided at some predetermined level of pressure to the batteries, and for



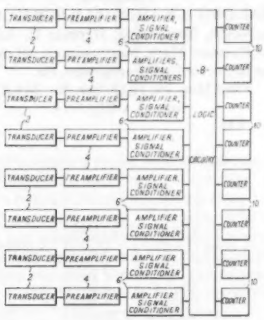
giving a visual indication regarding pressure of a plurality of cells at the same time. The device is constructed to be adjustable for accommodating variously sized batteries.

3,822,586

ELECTRICAL CIRCUIT MEANS FOR USE IN ACOUSTIC EMISSION DETECTING AND/OR RECORDING APPARATUS

Adrian Anthony Pollock, Bar Hill, Cambridge, England

Filed Aug. 1, 1972, Ser. No. 276,955
Int. Cl. G01h *1/00*
U.S. Cl. 73—71.4 **9 Claims**



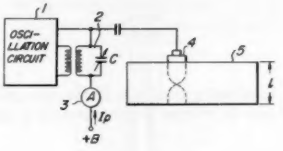
Electrical circuit means for use in acoustic emission detecting and/or recording apparatus comprises logic gates which in operation of the apparatus are connected to respective transducers so as to receive electrical signals representative in time of the distances of the transducers from a source of acoustic emission. Each gate is set prior to the receipt of a signal from the associated transducer to afford an output signal on receipt of a signal at its input. Further logic elements are provided which are connected with the logic gates and are adapted upon receipt by one of the gates by an input signal to reset for a predetermined time at least the remainder of the logic gates so as to prevent the appearance of an output signal on any of said remainder of the logic gates at said predetermined time.

3,822,587

AXIAL FORCE MEASURING METHOD UTILIZING ULTRASONIC WAVE

Takayuki Makino, Okazaki, and Haruhiko Toriyama, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-cho, Toyota-shi, Japan

Filed Nov. 9, 1971, Ser. No. 196,896
Claims priority, application Japan, Nov. 24, 1970, 45-103555
Int. Cl. G01h *13/00*; **G01l** *5/12*
U.S. Cl. 73—67.2 **4 Claims**



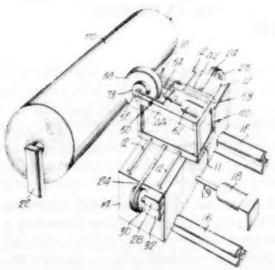
A method of measuring the axial force of a bolt or the like from the natural frequency differential of the bolt or the like between (when the axial force is zero) and (when the axial force exists), under forced oscillation caused by an ultrasonic wave within a specific frequency range or under forced oscillation caused by ultrasonic waves within two different frequency ranges.

3,822,588

APPARATUS FOR MEASURING THE HARDNESS OF MATERIAL

Richard Langham Castle Knight, 10 Arnside Ave., Stockfort, England, and George H. O. Blenes, 3500 Rutland Ave., Powell River, B. C., Canada

Continuation-in-part of Ser. No. 85,928, Nov. 2, 1970, abandoned. This application May 12, 1972, Ser. No. 252,861
Int. Cl. G01n *3/42*
U.S. Cl. 73—81 **27 Claims**



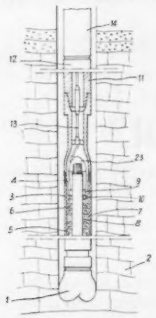
A method and apparatus for testing and measuring hardness such as roll hardness or hardness of a single or multiple layers of material having a somewhat compressible surface. Contactor means are applied to a material having a compressible surface at a known force-loading ratio and permit generation of electrical signals proportional to this ratio which are used to provide an accurate indication of the hardness of the material. The apparatus and method can be used in a static or dynamic mode of operation. The method and apparatus may be used with either one or two contactor members which contact the compressible surface at known force loadings.

3,822,589

SENSING DEVICE TO MEASURE THE SPEED OF ROTATION OF DRILLING TURBINES

Jean-Pierre Le Peuvedic, and Jacques Tinchon, both of Pau, France, assignors to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine Tour Aquitaine, Paris, France

Filed May 30, 1972, Ser. No. 257,763
Int. Cl. E21b 45/00
U.S. Cl. 73—151 4 Claims



This invention concerns a sensing device to measure the speed of rotation of a drilling turbine, used with a device to transmit signals from the bottom of the well to the surface.

This sensing device consists of a detector working with a mobile magnetic flux transducer, a tube containing the leads, and a male plug for connection with the transmitting device, with a flange at the top end of the tube which rests on the conical base of the turbine neck.

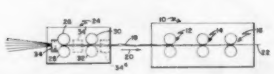
The device, because of its design, offers the advantages of a removable unit, which will fit any type of turbine.

3,822,590

TEXTILE SLIVER UNEVENNESS DETECTING

James B. Tharpe, Taylors; Christoph W. Aurich, Clemson, and Joseph B. Wallace, Greenville, all of S.C., assignors to Maremont Corporation, Chicago, Ill.

Filed May 1, 1972, Ser. No. 249,292
Int. Cl. D01h 5/32
U.S. Cl. 73—160 18 Claims



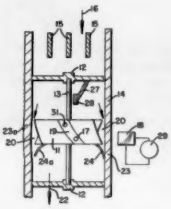
Method and apparatus for automatically reducing variations in the mass of moving staple fiber sliver including a novel textile fiber unevenness detector comprising a plurality of opposing members joined at one end so as to provide therebetween an enclosed passageway, wherein at least one of said members is inwardly and resiliently biased and bears a strain gage responsive to the outward displacement of the member for providing an electrical signal proportional thereto, whereby a textile fiber strand passing through the passageway displaces the unjoined end of the member outwardly thereof against the inward resilient bias thereof in proportion to the thickness and thus the instantaneous mass of the strand. The strain gage provides an electrical signal also proportional to the displacement. The invention also provides evening apparatus for continuously evening the mass of the moving fiber strand and presenting it to a drawing frame at uniform velocity including electrical and mechanical actuation means responsive to the electrical output signal of the unevenness detecting device.

3,822,591

PRECISION, FLUID FLOW METERING DEVICE

Chou H. Li, 379 Elm Dr., Roslyn, N.Y. 11576

Filed Mar. 14, 1972, Ser. No. 234,539
Int. Cl. G01f 1/00, 3/00
U.S. Cl. 73—194 M 39 Claims



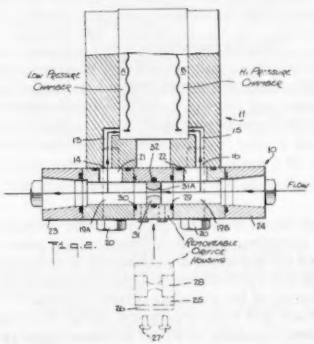
A device for metering fluid flow which comprises a fluid flow chamber, fluid inlet and outlet connected thereto, and a moving member cyclically movable with an operative clearance therein and through momentum exchange mechanically interacting with the fluid flow therethrough. The entire circumferential region of the moving member is relatively and automatically recedable from, and advanceable toward, the nearby inside wall of the flow chamber in accordance with, respectively, increasing and decreasing rates of the fluid flow. This feature controllably changes the circumferential clearance therebetween and insures that the cyclic speed of the member is proportional to the fluid flow rate, even at very low flow rates. The member may be provided with frictionless gas or liquid bearings for improved measuring accuracy and reliability. The device may also be mechanically temperature-compensated for measuring fluid mass flow, rather than fluid volumetric flow.

3,822,592

INTEGRAL ORIFICE ASSEMBLY FOR HEAD METERS

William A. Siegel, Norristown; Herman C. Aafjes, Jr., Hatfield, and Herman Marx, Southampton, all of Pa., assignors to Fischer & Porter Co., Warminster, Pa.

Filed Mar. 29, 1973, Ser. No. 345,838
Int. Cl. G01p 5/14
U.S. Cl. 73—211 6 Claims



An orifice assembly serving as a primary element of a head flow meter whose secondary element includes a pressure capsule having a pair of pressure chambers disposed within a housing and coupled to respective inlets on the housing wall.

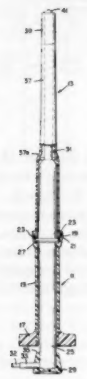
The assembly comprises a manifold body directly mounted on the housing wall and including a major longitudinal passage that is connectable to a line carrying the fluid whose flow rate is to be measured. The major passage is divided into two sections by an intermediate breech in the manifold body, the two sections communicating with respective lateral ports that register with the inlets leading to the pressure chambers. Receivable in the breech is a breech block provided with a minor longitudinal passage that links the two sections of the major passage when the block is in place. A replaceable orifice member is insertable in the minor passage to restrict the flow of fluid therethrough to induce a differential pressure that is sensed by the pressure capsule.

3,822,593

CLINICAL THERMOMETER PROBE AND DISPOSABLE COVER THEREFOR

Martin J. Oudewaal, Del Mar, Calif., assignor to Diatek, Inc., San Diego, Calif.

Filed Jan. 12, 1972, Ser. No. 217,371
Int. Cl. G01k *1/08*
U.S. Cl. 73—343 R **9 Claims**



A hand-held elongated probe with a thermistor element at its end and a disposable sanitary cover therefor. The disposable cover has a thin flexible membrane at one end thereof. The membrane of the probe cover is normally held tightly at its end in a flat but substantially unstretched manner. When a cover is positively engaged with the probe, its membrane is stretched tightly about the thermistor unit to permit efficient heat transfer to the thermistor from the environment outside the probe cover.

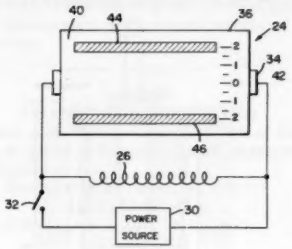
3,822,594

ELECTROTHERMAL ANALOG TEMPERATURE INDICATING DEVICE

Robert Parker, 394 Harper Ln., Danville, Calif. 94526

Filed Jan. 12, 1973, Ser. No. 323,182
Int. Cl. G01k *1/12*
U.S. Cl. 73—356 **12 Claims**

An electrothermal analog temperature indicating device is provided having an electrical heating resistance element with means for electrical connection to a heating appliance, a liquid crystal composition thermally responsive to said heating element to indicate at least one temperature of said heating appliance and means for insulating said device to provide a cooling response of said liquid crystal composition analogous



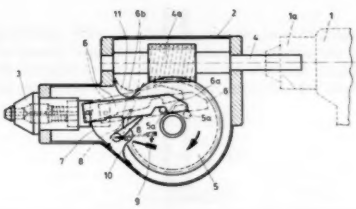
to the cooling response of said heating appliance, when electrical energy is no longer being supplied to said heating element.

3,822,595

BLIND RIVET SETTING ATTACHMENT FOR POWER TOOLS

Manfred Elflein, Bad Neustadt/Saale, Germany, assignor to Nieten-und Metallwarenfabrik Alfred Honsel, Frondenberg/Ruhr, Germany

Filed Aug. 23, 1972, Ser. No. 283,065
Claims priority, application Germany, June 20, 1972, 2230082
Int. Cl. B21d *9/05*
U.S. Cl. 72—391 **2 Claims**



A reciprocable blind rivet setting head is automatically coupled to and uncoupled from a continuously circulating drive lug by means of a swingable coupling bar to provide for a slow rivet pulling stroke of the head in one direction and for a fast return stroke under spring pressure in the opposite direction. Without stopping circulation of the drive lug, reciprocation of the setting head may be stopped by swinging the coupling bar out of reach of the drive lug.

3,822,596

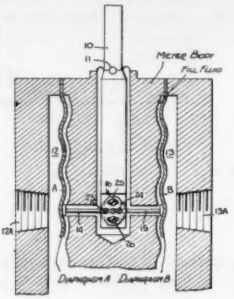
EQUALIZATION MECHANISM FOR DIFFERENTIAL PRESSURE METER

John J. Bonner, Philadelphia, Pa., assignor to Fischer & Porter Co., Warminster, Pa.

Filed Feb. 8, 1973, Ser. No. 330,662
Int. Cl. G01l *7/08*
U.S. Cl. 73—407 **4 Claims**

A differential pressure meter provided with a pair of nominally identical diaphragms linked by pins to the lower end of a pivoted force bar which is positioned intermediate the diaphragms. The diaphragms are mounted in pressure chambers respectively coupled to low and high pressure fluid inputs whereby the pins, as a result of diaphragm deflection, apply an input force to the bar that depends on the difference in input

pressures. In order to correct for any lack of identity between diaphragms, the ends of the pins are secured to the bar by an adjustable clamp assembly. The clamp is rotatable about its center on the bar within limits determined by a pair of slots



positioned above and below the center, the clamp being rotated to a degree adjusting the respective moment arms of the pins to balance the torque about the meter pivot. Screws passing through the clamp slots and received in the force bar serve to lock the clamp at its adjusted position.

3,822,597

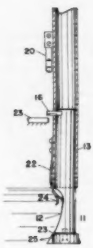
METHOD AND APPARATUS FOR SAMPLING LIQUIDS

James d'A. Clark, Chuckanut Point, Bellingham, Wash. 98225

Filed Dec. 4, 1972, Ser. No. 311,920

Int. Cl. G01n *1/12*

U.S. Cl. 73—423 R **10 Claims**



A method and apparatus is described for extracting periodically a sample of a liquid corresponding to a predetermined fraction of the whole flowing past the sampling location, with means to raise the sample to a higher level, means to discharge the sample into a container whose contents will correspond to the total volume of the stream that has flowed past that location during a known past interval, with simple means to cause the sample extractor to clear itself continually from any required slime or garbage that otherwise would affect the accuracy of the volume or the continuity of the samples taken.

3,822,598

PORTABLE ELECTRONIC THERMOMETER AND METHOD OF TEMPERATURE MEASUREMENT

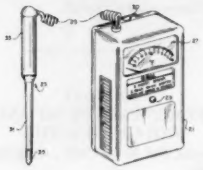
Benton H. Brothers; William O. Christianson; Larry L. Hunter; Max R. Hunter; Bob E. Stauder, and Conald D. Sitler, all of Tulsa, Okla., assignors to LaBarge, Inc., St. Louis, Mo.

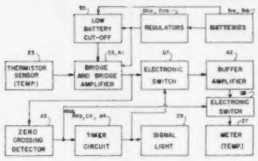
Filed Mar. 23, 1971, Ser. No. 127,243

Int. Cl. G01k *7/24*

U.S. Cl. 73—362 AR **34 Claims**

An electronic thermometer having a probe for introduction into a region having a temperature to be measured. The probe includes a temperature sensitive impedance element having a heat sensing relationship with the region when the probe is introduced thereinto. Timing means is provided for initiating a predetermined timing interval upon the temperature of the element exceeding a preselected level following introduction of the probe into the region. Circuitry measures the temperature of the element at the completion of the timing interval. A meter provides means for indicating a temperature which is a function of the measured temperature of the element at the





completion of the timing interval, the indicated temperature being a substantially accurately extrapolated representation of the actual temperature in the region.

As a method of temperature measurement, the invention involves measurement of the impedance of the element at the end of the timing interval and before the temperature of the element reaches the actual temperature in the region. The time required for indicating the actual temperature is thus significantly reduced.

3,822,599

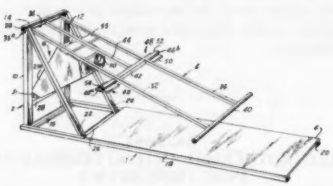
EXERCISING DEVICE

Jerry D. Brentham, Rt. 1 Box 197A, Temple, Tex. 76501

Filed Oct. 16, 1969, Ser. No. 866,839

Int. Cl. G01l *5/02*; **A63b** *21/02*

U.S. Cl. 73—379 **19 Claims**



An exercising device comprising a handle pivotally mounted on a frame with a hydraulic system connected to the handle to exert a regulated force restraining movement of the handle. The hydraulic system comprises a hydraulic cylinder, a reservoir, a valve arranged to prevent movement of the handle until a force of predetermined regulated magnitude is exerted on the handle, and a second valve arranged to control

the rate of movement of the handle when a force exceeding the predetermined magnitude is exerted thereon. A calibrated gauge indicates the magnitude of force exerted at various points on the handle.

3,822,600

DEVICE FOR THE REMOVAL OF INDIVIDUAL SAMPLES FROM STATIC BULK MATERIAL

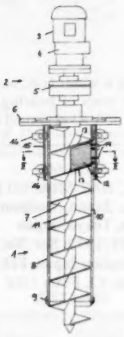
Alfred Stonner, Sickingmuhlerstr., D 4370 Marl; Rolf Kohling, Lohbusch 1, D 4640 Wattenscheid, and Manfred Debus, Erzbergerallee 101, D 5100 Aachen, all of Germany

Filed Jan. 12, 1973, Ser. No. 323,323

Claims priority, application Germany, Jan. 15, 1972, 2201896

Int. Cl. G01r *1/08*

U.S. Cl. 73—424 9 Claims



This disclosure relates to a sampling device which includes a casing having a drilling worm or auger mounted therein and wherein there is carried by the casing for movement axially thereof a scraper, the scraper being disposed between adjacent convolutions of the drilling worm and being operable both to form a top closure for the space within the casing during the taking of a sample and to effect a thorough cleaning of the drilling worm during the discharge of a sample whereby the sample discharged from the sampling device will be a complete sample and definitive of the area of the bulk material from which the sample is taken. The automatic cleaning of the sampling device both assures a complete sample and eliminates the unnecessary later cleaning of the sampling device.

3,822,601

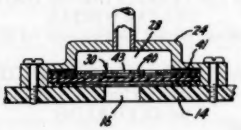
PNEUMATIC ANALOGUE DECOMPRESSION INSTRUMENT

Marcus P. Borom, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 16, 1973, Ser. No. 333,220

Int. Cl. G06g *5/00*

U.S. Cl. 73—432 R 1 Claim



In this decompression computer, the computation function is performed by a composite membrane assembly of a gas-diffusion membrane sandwiched between plastic reinforcing screens joined to the periphery of the membrane in an annular bond which also serves to gasket parts of the computer housing. An apertured metal retaining disc prevents gas pressure differential displacement of the central portion of the composite membrane.

3,822,602

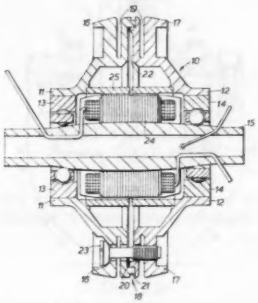
AXIALLY ADJUSTABLE GYRO

James Holmes, and William Robertson, both of Edinburgh, Scotland, assignors to Ferranti Limited, Hollinwood, Lancashire, England

Filed Oct. 18, 1972, Ser. No. 298,515

Int. Cl. G01c *19/06*

U.S. Cl. 74—5 R 7 Claims



A gyroscope rotor is made so that its axial configuration may be simply adjusted by providing a resilient rim having grooves formed in it. Screws around the rim enable the resilient portion to be compressed so as to alter the configuration.

3,822,603

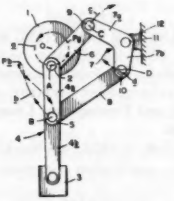
SLIDE DRIVING LINKAGE FOR METAL FORMING PRESS

Toshimitsu Morita, and Jyousuke Kawachi, both of Osaka, Japan, assignors to U.S. Industries, Inc., New York, N.Y. and Hitachi Shipbuilding and Engineering Co., Ltd., Osaka, Japan, part interest to each

Filed Sept. 19, 1972, Ser. No. 290,333

Int. Cl. F16h *21/26*

U.S. Cl. 74—38 4 Claims



The slide of a metal forming press is caused to rapidly approach the metal to be formed, then decelerate during the

working stroke, and thereafter rapidly return to the uppermost position thereof by means of a novel linkage arrangement.

3,822,604

UNBALANCED VIBRATOR FOR AN OSCILLATING CONVEYOR OR A VIBRATING SCREEN

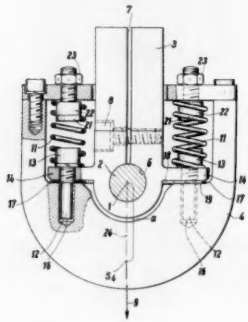
Klaus Jurgen Grimmer, A-8707 Leoben - Gob Alpenstrasse 39, Steiermark, Austria

Filed June 2, 1972, Ser. No. 258,986

Claims priority, application Germany, June 3, 1971, 2127433

Int. Cl. F16h *33/10*

U.S. Cl. 74—87 **7 Claims**



Vibratory power unit for vibrating conveyers and screens comprising an asynchronous polyphase motor, at least one pair of associated unbalanced masses disposed on the shaft of said motor, with the first mass of a pair of said unbalanced masses being rigidly fastened to said shaft and with said second mass of said pair being movably arranged relative to said first mass, means for controlling and regulating the conveying rate during conveyer operation by varying the rotational speed of said motor between predetermined minimum and maximum values, said second mass being movably outwardly by centrifugal force against the pressure of spring means, said spring means being prestressed in such a manner that said second mass is, at rotational motor speeds lower than said minimum speed, held in its initial position, and at motor speeds between said lower and upper values in positions which are radially offset with respect to the axis of said motor to an extent depending on the value of said rotational motor speed.

3,822,605

JOURNAL MEANS FOR MOUNTING ROTARY DRUMS

Rainer Schurger, Arnsteing; Gunter Neder; Lothar Walter, both of Schweinfurt; Manfred Brandenstein, Aschfeld, and Kurt Feldle, Wurzburg, all of Germany, assignors to SKF Industrial Trading and Development Company B.V., Amsterdam, Netherlands

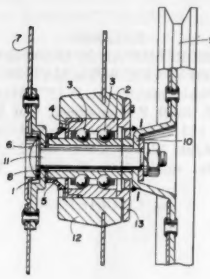
Filed Feb. 9, 1973, Ser. No. 331,111

Claims priority, application Germany, Feb. 17, 1972, 7205917[U]

Int. Cl. F16h *55/34*

U.S. Cl. 74—230.3 **10 Claims**

Apparatus for journalling the drum or basket of rotating machines and drying machines is provided comprising a bearing having two axially spaced rows of rolling elements arranged between a common inner race ring and an outer race



ring. The inner race ring is wider (i.e.: axially longer) than the outer race ring and the rows of bearing elements are axially spaced from each other only a very small distance.

3,822,606

ELASTIC BAR-SHAPED RACK

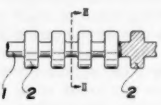
Miyao Yoshino, Tokyo, Japan, assignor to Kabushikigaisha Nittsu Sogokenkyusho, Tokyo, Japan

Filed Dec. 29, 1972, Ser. No. 319,650

Claims priority, application Japan, Feb. 1, 1972, 47-11008

Int. Cl. F16h *1/04*

U.S. Cl. 74—422 **5 Claims**



A bar-shaped flexible rack for slidable linear motion under the action of a rotatable pinion within a curved guide, the rack being provided with rack teeth set at a fixed spacing on a spindle a plurality of elasticity, which spindle has a predetermined elasticity.

ERRATUM

For Class 74—424 see:
Patent No. 3,822,439

3,822,607

DEVICE FOR THE LUBRICATION OF TOOTH FLANKS OF GEAR WHEELS

Nils Fr. Tharaldsen, Harald Lovenskiolds vei 42, Oslo 7, Norway

Filed July 13, 1972, Ser. No. 271,224

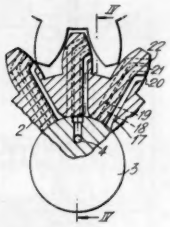
Claims priority, application Norway, July 15, 1971, 2716/71

Int. Cl. F16h *57/04*

U.S. Cl. 74—468 **2 Claims**

A device for lubrication of the tooth flanks of gear wheels, comprising a freely running toothed or spiked applying wheel each tooth or set of spikes corresponding to a tooth being pro-

vided with a plurality of radial passages each having one single outlet opening in the flank of the respective tooth or spike and



the inlet openings of the said passages being successively brought in communication with a source of lubricant under pressure.

3,822,608

ENERGY ABSORBING STEERING ASSEMBLY

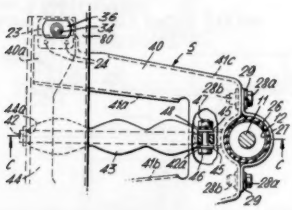
Genyo Murase, Nagoya; Hisahal Mineda, and Yozo Yamaguchi, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

Filed May 25, 1972, Ser. No. 256,872

Claims priority, application Japan, May 25, 1971, 46-35819; May 28, 1971, 46-37156; May 31, 1971, 46-37678

Int. Cl. B62d *1/18*

U.S. Cl. 74—493 **8 Claims**



An energy absorbing steering assembly for a motor vehicle having a steering column supporting assembly for supporting the steering column substantially at a right angle from the instrument panel of the vehicle and a steering wheel supporting assembly being able to forwardly deflect. The steering column supporting assembly is enabled to buckle to absorb forward impact energy when an impact force is exerted onto the steering wheel and the steering wheel supporting assembly functions to absorb further the forward impact energy in addition to the buckling operation of the steering column supporting assembly.

3,822,609

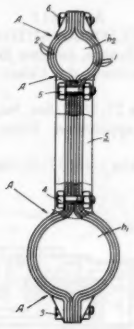
CONNECTING ROD

Stefan Kotoc, Praha, Czechoslovakia, assignor to Ustar pro uyzkum motorovych vozider, Praha, Czechoslovakia

Filed Apr. 17, 1972, Ser. No. 244,663

Int. Cl. F16c *7/08*

U.S. Cl. 74—579 E **9 Claims**



A connecting rod comprising a shank and at least one end connecting member, formed entirely of layers of strip sheet steel.

3,822,610

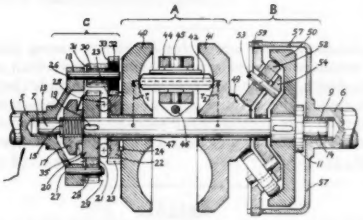
TRACTION ROLLER TRANSMISSION WITH TORQUE LOADING MEANS

Richard T. Erban, 145-38 Bayside Ave., Flushing, N.Y. 11354

Filed Aug. 31, 1972, Ser. No. 285,517

Int. Cl. F16h *37/06*

U.S. Cl. 74—691 **6 Claims**



This invention relates to traction roller transmissions with infinitely variable driving ratio, which are especially designed for the propulsion of automotive vehicles. In order to compete with presently used drives, an infinitely variable transmission must have a high efficiency of over 95 percent and a long service fatigue life when operating over long time periods at full engine power. Presently known designs can not meet these requirements. The transmission here disclosed is based on a novel concept and design and will deliver full engine power at 97 to 98 percent efficiency over the upper ratio range, including top speed ratio, and has a service fatigue life of over 100,000 vehicular miles. These results are achieved for a toric race and roller drive having a torque loading device for maintaining the required pressure in the tractive roller contacts by the combination with the torque load device of a novel planetary torque-split device, causing a preselected modification of the axial pressure forces and their characteristic over the entire ratio range; reducing the axial pressures produced by the

torque load device only for the upper part of the speed ratio range also reduces the losses of power in the tractive rolling contacts, thereby increasing the efficiency and the service fatigue life of the toric rollers and races. FIG. 7 and text give details of this modification of the axial pressure characteristic as against the characteristic obtained by a conventional torque load device.

3,822,611

CONTROL CIRCUIT FOR AN AUTOMATIC GEAR BOX

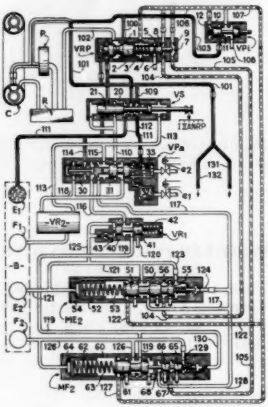
Jean Piret, Bougival, France, assignor to Automobile Peugeot, Paris and Regie Nationale des Usines Renault, Billancourt, both of, France

Filed June 27, 1972, Ser. No. 266,577

Claims priority, application France, July 21, 1971, 71.26636

Int. Cl. F16h *3/44, 57/10;* **B60k** *17/02*

U.S. Cl. 74—753 **7 Claims**



Hydraulic control circuit for a gearbox having planetary gear means and speed ratio selecting means which are associated with the planetary gear means and include clutch and brake devices the selective actuation of which determines the speed ratio. The control circuit includes means for modifying the value of the line pressure as a function of the speed engaged.

3,822,612

CHANGEABLE SPEED AND TORQUE VALVE ACTUATOR

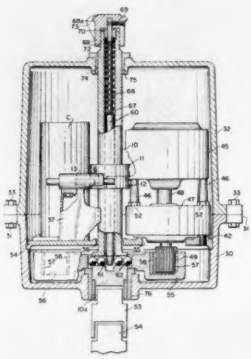
Robert E. Sanctuary, Shewsbury, Mass., assignor to Worcester Controls Corp., West Boylston, Mass.

Filed Feb. 5, 1973, Ser. No. 329,950

Int. Cl. C11d *17/00*

U.S. Cl. 74—849 **12 Claims**

An electric actuator for varying the position of a valve stem comprises an output shaft adapted to be coupled to the valve stem. The output shaft is selectively rotated, between limit positions defined by a pair of electrical limit switches cooperating with cams carried by the output shaft, through the agency of a motor module comprising one or more electric motors and an associated gear box having an output pinion in drive engagement with an output gear coupled to the output shaft. The output gear includes two sets of concentric teeth disposed in spaced relation to one another, and adapted to be engaged individually by the motor module pinion, for driving the output shaft at different torques and speeds in dependence upon which set of output gear teeth is engaged by the pinion. The motor module can be mounted in either of two different positions to cause its pinion to engage one or the other of the output gear teeth sets. The output pinion is preferably located



at an eccentric position relative to the motor module so that pinion engagement can be shifted from one to the other of the gear teeth sets by a 180° reversal in the motor module mounting position.

3,822,613

BANDSAW GRINDER

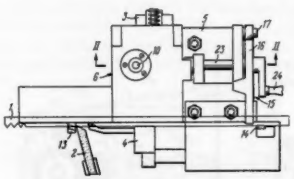
Vladimir Viktorovich Idel, ulitsa Gertsena, 3, kv. 37, Zavolzhie Gorkovskoi Oblasti, U.S.S.R.

Filed Aug. 2, 1972, Ser. No. 277,255

Claims priority, application U.S.S.R., Feb. 22, 1972, 1746566

Int. Cl. B23d *63/08*

U.S. Cl. 76—37 **2 Claims**



A band saw grinder comprising a flexible clamping device for holding the saw in a floating position and a device for braking the saw in the course of grinding.

3,822,614

TOOL FOR USE AS JAR AND BOTTLE OPENER

Radoslav Kovacevic, 300 N. State St., Chicago, Ill. 60610

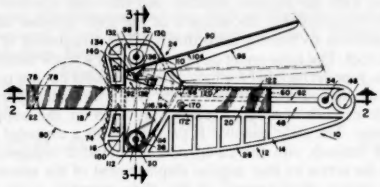
Continuation of Ser. No. 795,284, Jan. 30, 1969, abandoned. This application June 19, 1972, Ser. No. 263,814

Int. Cl. B67b *7/14*

U.S. Cl. 81—3.42 **1 Claim**

In a tool having opposed jaws and lever-actuated mechanism for drawing the jaws together to fit against

threaded parts of various sizes, the lever-actuated mechanism comprises a pivotally mounted lever and force transmitting



means movable over an arcuate path in substantially parallel relation to a sliding member formed with a series of ratchet teeth.

3,822,615

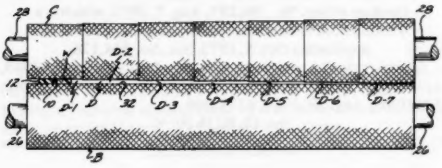
WIRE AND CABLE INSULATION REMOVING DEVICE

Clovis H. Reed, 421 Merced St., Avenal, Calif. 93204

Filed Sept. 29, 1972, Ser. No. 293,387

Int. Cl. H01b *15/00*; **B26f** *3/04*

U.S. Cl. 81—9.51 **1 Claim**



A power-operated device for removing insulation from various sized scrap wires and cables without burning, and thus improving the ecology by eliminating the discharge of smoke and fumes into the ambient atmosphere.

3,822,616

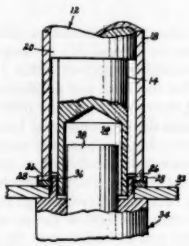
NUT DRIVER

Ruben Verldon Phillips, Mason, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Feb. 23, 1973, Ser. No. 334,987

Int. Cl. B25b *13/48*

U.S. Cl. 81—90 C **1 Claim**



A tool for driving a notched ring nut to secure a device to a panel, with means for preventing lateral slippage of the tool while turning the same during engagement of the tool in notches of the notched nut having a clearance region providing clearance for internal interference of a projection on the device.

3,822,617

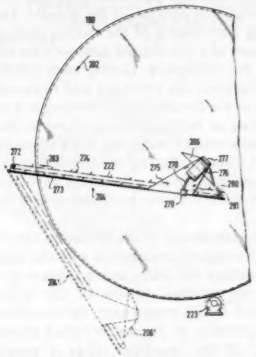
APPARATUS FOR CONTINUOUS TRANSFER OF A MATERIAL ROPE FROM A PILE TO A FOLLOWING DEVICE

Ernst Weichel, Postfach 30, 7326 Heiningen, Germany

Filed Sept. 22, 1972, Ser. No. 291,210

Int. Cl. B26d *3/28*

U.S. Cl. 82—2.5 **30 Claims**



Leaf and stalk feed material, piled on a rotatable turntable, is removed in a continuous rope-like form by a cutting tool supported on one end of a boom. The boom is pivotally mounted at one end so that its other end supporting the cutting tool can swing inwardly from the outer circumferential periphery of the turntable toward its center as the cutting tool removes the material from the pile and directs it into a conveyor duct extending along the boom from its free end to its pivoted end. The drive arrangements for the boom, the cutting tool and the turntable can be interrelated to afford coordinated operation in removing the material from the turntable as the cutting tool swings inwardly and for returning the cutting tool to its starting position when the material has been completely removed from the turntable.

3,822,618

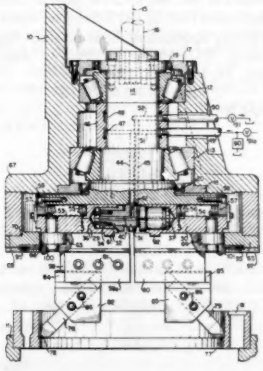
CONTOUR MACHINING

Arthur A. Tomenceak, Fairfield, Conn., assignor to The Bullard Company, Bridgeport, Conn.

Filed Nov. 13, 1972, Ser. No. 305,653

Int. Cl. B23b *3/28*, *3/00*

U.S. Cl. 82—18 **13 Claims**



The disclosure relates to techniques in equipment for the machining with single point tooling of non-circular shapes and

contours. The procedure according to the invention involves the use of a rotary cutting head, carrying one or more cutting tools, arranged to be advanced axially to accomplish internal boring or external turning of non-circular shapes. The cutting head, which may be considered either a boring head or a turning head, depending on whether the cut is taken internally or externally, is mounted for controlled advancing and retracting movements along its rotational axis. The cutting tools themselves, which are carried by the cutting head, are mounted for controlled radial extending and retracting movements as a function of the rotational position of the spindle. The extending and retracting movements of the cutting tool or tools is controlled by means of a pre-shaped contour cam mounted in fixed relation to the workpiece. During each rotation of the spindle, the cutting tools are extended and retracted according to the pattern of the contour cam, resulting in a contoured, non-circular, cutting or boring of the workpiece. Because the tool-carrying spindle rotates, while the work remains stationary, the centrifugal force created by the spindle rotation is used to great advantage to assist in controlling movement of the tool slide in accordance with the path determined by the contour cam.

The process and apparatus of the invention can be utilized to outstanding advantage in connection with the machining of epitrochoidal chambers for rotary combustion (e.g., Wankel) engines. Significant process aspects of the invention are directed to that end. In this connection, the invention involves the two-stage machining of an epitrochoidal chamber, with the spindle axis of the machine offset a predetermined distance from the plane dividing the two principal lobes of the chamber. In accordance with an important aspect of the invention, by off-setting the spindle axis along the major axis of the chamber, to be located a short, predetermined distance from the transverse dividing plane, an entire half of the epitrochoidal chamber may be machined in one pass of the spindle, using single point cutting tools. The spindle axis is then symmetrically repositioned in offset relation on the opposite side of the dividing plane, to effect machining in a single pass of the other half of the chamber. This extraordinary technique permits exceptional time economies to be realized in the machining of the combustion chamber while at the same time achieving much greater levels of accuracy than has been obtainable with conventional machining processes.

3,822,619

TOOL HOLDER ASSEMBLY HAVING MEANS FOR SELECTIVELY ADJUSTING THE POSITION OF THE WORK TOOL

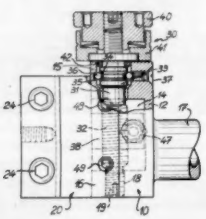
Charles Willen, Villeneuve, Switzerland, assignor to Charles Willen & Cie., Villeneuve, Switzerland

Division of Ser. No. 386,297, Aug. 7, 1973, which is a continuation of Ser. No. 67,370, Aug. 27, 1970. This application Oct. 5, 1973, Ser. No. 404,127

Claims priority, application Switzerland, Aug. 29, 1969, 13108/69; Aug. 29, 1969, 13109/69; Aug. 29, 1969, 13110/69; Aug. 29, 1969, 13112/69

Int. Cl. B23b *29/10*

U.S. Cl. 82—36 R **10 Claims**



A tool holder assembly comprises a support member connectable to a machine tool and having therein a linear slideway. A slide member is slideably mounted in the slideway and the slide member is provided with a tool-holding recess for releaseably holding a work tool. An adjustment device coacts with the support member and the slide member for selectively adjusting the position of the slide member along the slideway to thereby accordingly effect adjustment of the work tool. The adjustment device comprises a screw mounted on the support member for rotational movement but not translational movement and the screw has a threaded portion which extends through a cavity provided in the support member. The slide member is provided with a threaded nut which extends into the cavity and in threaded engagement with the screw so that angular displacement of the screw effects linear displacement of the slide member along the slideway. A manually graspable knob is connected to the screw to enable manual adjustment of the slide member.

3,822,620

TOOL HOLDER ASSEMBLY HAVING MEANS FOR SELECTIVELY ADJUSTING THE POSITION OF THE WORK TOOL

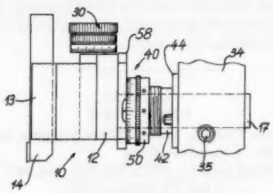
Charles Willen, Villeneuve, Switzerland, assignor to Charles Willen & Cie, Villeneuve, Switzerland

Division of Ser. No. 386,297, Aug. 7, 1973, which is a continuation of Ser. No. 67,370, Aug. 17, 1970. This application Oct. 5, 1973, Ser. No. 404,128

Claims priority, application Switzerland, Aug. 29, 1969, 13108/69; Aug. 29, 1969, 13109/69; Aug. 29, 1969, 13110/69; Aug. 29, 1969, 13112/69

Int. Cl. B23b *29/10*

U.S. Cl. 82—36 R **9 Claims**



A tool holder assembly comprises a tool support having a tool-holding recess for releaseably holding a work tool and a mounting shank slideably disposed within a bore provided in a machine tool so that the work tool position may be adjusted by adjustably sliding the mounting shank relative to the machine tool. An adjustment device connected between the tool support and the machine tool enables very accurate adjustment of the work tool position. The adjustment device comprises an externally threaded tubular shaft connected to the machine tool and slideably receiving therethrough the mounting shank, and an internally threaded hollow sleeve rotatably connected to the tool support and threaded onto the tubular shaft. The hollow sleeve is rotatably connected to a support flange affixed to the tool support by means of a set of antifriction rollable members housed in bearing races formed directly in the support flange and the hollow sleeve. A series of blind holes are provided around the outer surface of the hollow sleeve and a tool inserted into the blind holes enables manual rotation of the hollow sleeve to effect axial displacement of the tool support and thus the work tool relative to the machine tool.

3,822,621
METHOD AND APPARATUS FOR CUTTING ELONGATE ARTICLES

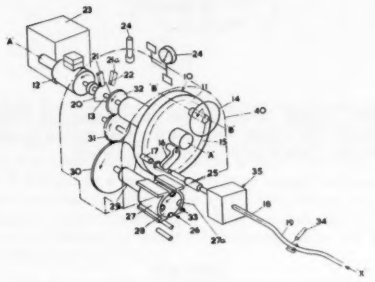
Richard Northan Knights, Gloucester, and Shore Robert Alexander, Straftford-upon-Avon, both of England, assignors to Imperial Metal Industries (Kynoch) Limited, Witton, Birmingham, England

Filed Mar. 23, 1973, Ser. No. 344,085

Claims priority, application Great Britain, Apr. 7, 1972, 16151

Int. Cl. B26d *5/32, 3/16*

U.S. Cl. 83—23 **8 Claims**



Apparatus and method for cutting elongate articles, particularly tube, into individual short lengths, the apparatus comprising a rotatable cutting blade of which the axis is movable along an eccentric path with respect to the tube.

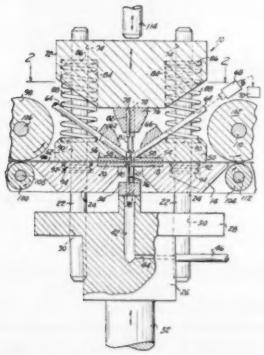
3,822,622
APPARATUS FOR MAKING ANNULAR PARTS

Joseph E. Smith, Birmingham; Raymond P. DeSantis, Royal Oak, and Georges D. Detroyer, Grosse Ile, all of Mich., assignors to Wolverine-Pentronix, Inc., Lincoln Park, Mich.

Filed Aug. 7, 1972, Ser. No. 278,532

Int. Cl. B26f *1/02*

U.S. Cl. 83—100 **15 Claims**



An apparatus for punching annular parts from a sheet of stock material, such as a continuous ribbon or tape of plastic material. The apparatus comprises means for feeding the ribbon or tape of stock material between two plate members, clamping a portion of the ribbon or tape between the plate members, and, by means of a pair, or a plurality of pairs, of opposed punch members adapted to be reciprocated in timed relationship to firstly punch from the stock material a slug for forming the center aperture of the annular part, and secondly punch from the stock material the annular part itself. The slug punched from the stock material and the annular part are separated by appropriate aspirator means.

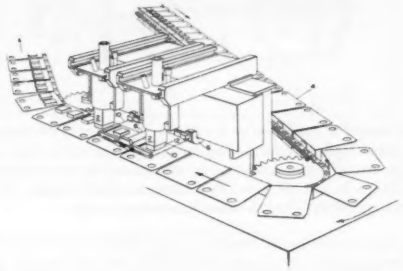
3,822,623
EXTRUSION CUTTING APPARATUS

Edward M. Wight, Austin, Tex., assignor to Glacier Industries, Inc., Austin, Tex.

Filed Jan. 23, 1973, Ser. No. 326,057

Int. Cl. B26d *7/10, 1/56*

U.S. Cl. 83—171 **18 Claims**



An electrically heated wire is moved through an elliptical path beneath an ice cream extrusion nozzle to slice the extruded stream into bars onto a conveyor which carries the bars into a freezing vault. Below the extrusion nozzle a carriage revolves in a substantially elliptical orbit. The ellipse is located, with respect to the extruded stream, such that the electrically heated cutting wire, mounted on the cutting carriage, makes contact with the stream only while travelling along the flatter side of the ellipse nearest the nozzle. The major elliptical axis can be slanted so that a nearly right-angle cut can be made across the extruding fluid stream. The cutting carriage is free to slide along two supporting bars, both of which are pivotally fastened to two cranks eccentrically mounted on two synchronized rotating shafts. A rotatable center crank revolves in a controllable phase relationship with the outer cranks. This center crank is free to travel within a groove perpendicular to the carriage supporting bars. The outer cranks impart a simple harmonic motion in one direction to the carriage and the center crank imparts another simple harmonic motion to the carriage in a direction perpendicular to the first motion. Changes in the orientation of the major axis are made by altering the phase relationship between the center and outer cranks. Since all points in the cutting carriage travel in parallel planes, multiple cutting wires can be attached to the carriage, thereby allowing it to simultaneously slice multiple nozzle streams. All the cranks are driven by the same motor through a mechanical linkage. The timing of the cutting motion can be changed through simple adjustments in the mechanical linkage.

3,822,624
FILM CUTTING DEVICE

Akira Shoji, Yokohama; Takao Toda; Kano Tanaka, both of Tokyo, and Takashi Hirashima, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 18, 1972, Ser. No. 315,822

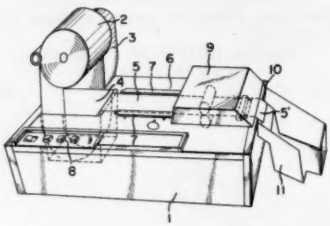
Claims priority, application Japan, Dec. 22, 1971, 46-104324; Dec. 24, 1971, 46-647; Jan. 14, 1972, 47-6531; Mar. 17, 1972, 47-27557

Int. Cl. B26d *5/32, 5/34*

U.S. Cl. 83—208 **5 Claims**

An automatic film cutting device is used to cut rolled or strip film off into sheet film having a predetermined length.

This film cutting device comprises detecting means for detecting film cutting marks on film to be cut off, film advancing means for advancing the film, and measuring means for measuring the advancement of the film. The measuring means is



actuated in response to the output signal from the detecting means, and the film cutting means is actuated in response to the output signal generated by the measuring means when the film to be cut off is fed by a predetermined length, thereby cutting off the film into a predetermined length.

3,822,625

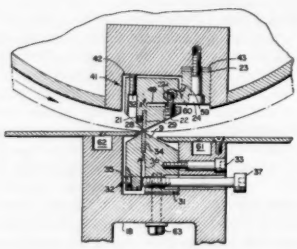
ROTARY CUTTER WITH QUICK CHANGE KNIFE

David Noel Obenshain, Swanton, Md., assignor to Westvaco Corporation, New York, N.Y.

Filed Feb. 9, 1973, Ser. No. 330,965

Int. Cl. B26d *1/38*

U.S. Cl. 83—342 **14 Claims**



A quick change knife blade support structure for a rotary cutter is disclosed wherein a fly knife support holder and a bed knife support holder are rigidly mounted respectively in a rotary cutter drum and bed plate, which holders include clamping portions for fixedly securing and retaining therein the fly knife and bed knife, with additional provisions included for adjusting the position of the fly knife with respect to the cutter drum.

3,822,626

PRECISION BOOK CUTTING APPARATUS

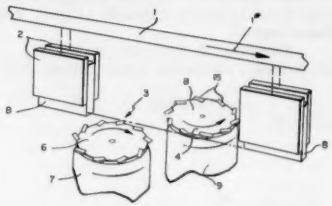
Peter Aspinwall, Carlisle, Mass., assignor to Comstock & Wescott, Inc., Cambridge, Mass.

Filed June 1, 1973, Ser. No. 366,133

Int. Cl. B23d *45/10*

U.S. Cl. 83—404.4 **7 Claims**

A machine for precise cutting of the collated pages of an unbound book has a conveyor with clamps for carrying successive books along a line past two oppositely rotating cutting wheels or precision saws which cut into the book from opposite sides of the book line. Each wheel has a plurality of



identical cutting inserts or bits interchangeably fitting in sockets on the wheels. Each bit has four cutting corners or points two of which are effective on each wheel.

3,822,627

PRESS WITH A WORKING TABLE PROVIDED WITH AN INFLATABLE CUSHION

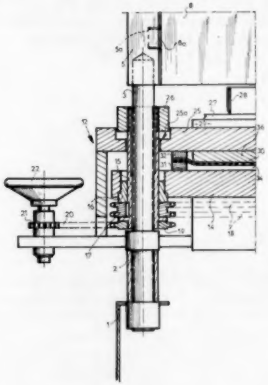
Vittorio Achille Bianchi, 37, avenue Paul Downer, Paris, France (75016)

Filed Mar. 12, 1973, Ser. No. 340,176

Claims priority, application France, Apr. 10, 1972, 72.12458

Int. Cl. B26d *5/12*

U.S. Cl. 83—529 **10 Claims**



The press comprises a horizontal cutting table intended to receive the material to be cut and the cutting tool placed on the said material and a horizontally slidable carriage located at a level higher than that of the table, said table comprising a positioning plate which is vertically movable with respect to the said carriage, a pressing plate arranged above the positioning plate and movable vertically with respect to the latter, and an inflatable element interposed between the said plates and serving to drive the pressing plate towards the carriage so as to cause the cutting tool abutting against the said carriage to penetrate into the material to be cut.

3,822,628
VIOLIN

William J. Quemore, Sr., 149 E. Church St., Blackwood, N.J. 08012

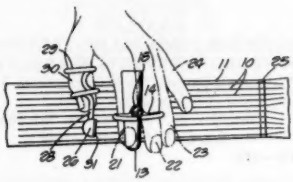
Filed Apr. 16, 1973, Ser. No. 351,571
Int. Cl. G10d *1/02*
U.S. Cl. 84—275 6 Claims

A violin is constructed with its sounding box formed with a concave bottom surface to fit against the shoulder of the violinist and with a hook on its top surface that can be attached to a band around the violinist's body. In addition, the violin is formed in a pear shape with a longer neck section than in the classical violin. Thereby, the violinist can play the instrument without supporting it under the chin, and achieve full range of fingering without interference from the front edge of the sounding box.

3,822,629
SLIDE BAR APPARATUS FOR GUITAR

Walter E. Smith, P.O. Box A, Payette, Idaho 83661

Continuation-in-part of Ser. No. 260,899, Aug. 9, 1972, abandoned. This application Feb. 12, 1973, Ser. No. 331,786
Int. Cl. G10d *3/00*
U.S. Cl. 84—319 8 Claims



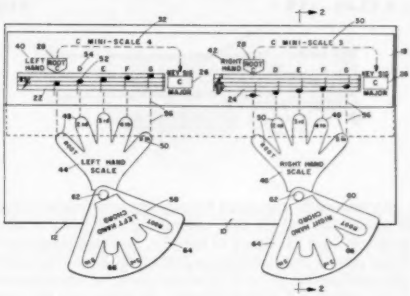
Slide bar apparatus for use on the strings of a guitar includes a long bar for contact with a plurality of strings and a separate short bar for contacting one string at a time. The long bar has a transverse retainer with loops for reception of fingers of the user. The short bar is mounted on a receptacle for the thumb of the user, and the short bar is provided with a vibration dampener which can be turned to distribute wear.

3,822,630
MUSIC TEACHING AID BASED ON THE HANDS AND SCALE DEGREES

Verna M. Leonard, 6353 N. Blackstone, Fresno, Calif. 93721

Filed Feb. 8, 1973, Ser. No. 330,693
Int. Cl. G09b *15/02*
U.S. Cl. 84—471 3 Claims

A device for teaching elementary musical relationships and notation particularly in regard to scale tones and chords and uniquely associated with pre-known names and order of the user's fingers on both hands. Incidentally the same numbering of the fingers, from left to right in each also teaches, by assocation, the first five degrees by numerical name. The two hands are on a panel which also supports one of a set of strip inserts carrying, for example, treble and bass clef notation for a particular key signature and the first five, or lower five, notes or tones of that diationic scale, it being proposed that the student will ordinarily have no difficulty whatever in extrapolating the "mini-scale" of five tones to the full octave and then to octaves above and below that learned by use of the device. For teaching chords a pair of hands are provided with three fingers only on each hand denominated as Root, 3rd and 5th degree

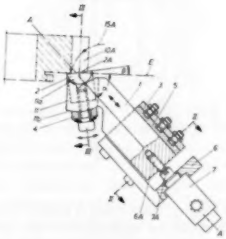


and also correlated as before with fingers named in that order, left to right so that the Root tone is associated with the little finger of left hand for the bass clef and the thumb of the right hand for the treble clef, the remaining tones following in this natural learning order, and every finger visually related with the corresponding notation by lead lines of obvious significance to the user.

3,822,631
TRIMMING DEVICE FOR GEAR HOBBING MACHINE

Otto Bauknecht, Friedrichshafen; Albert Bleyer, Tettnang-Dietmannsweiler, and Adolf Horl, Friedrichshafen, all of Germany, assignors to Zahnradfabrik Friedrichshafen AG, Postfach, Germany

Filed Aug. 3, 1972, Ser. No. 277,570
Claims priority, application Germany, Aug. 7, 1971, 2139737
Int. Cl. B23f *19/10, 21/28*
U.S. Cl. 90—1.4 7 Claims



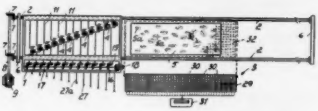
The invention provides a trimming cutter mechanism for trimming the conical face at the ends of the teeth of a gear being hobbed. The arrangement includes a hydraulically operated linearly movable holder which can be advanced into cutting engagement, and withdrawn, in synchronization with the feeding and withdrawal movement of the gear work piece. Also included is a mount for the cutter which can automatically adjust to the angle of the tooth ends.

3,822,632

AUTOMATIC APPARATUS FOR SCARFING SEMIFINISHED PRODUCTS

Mario Chigiotti, Genova, Italy, assignor to Bocami di Garibaldo Attillio S.p.A., Via Adamello, Santa Maria Rossa di Garbagnate, Italy

Filed Sept. 20, 1971, Ser. No. 181,661
Claims priority, application Italy, Sept. 24, 1970, 30177/70
Int. Cl. B23c *3/14*
U.S. Cl. 90—13 R **9 Claims**



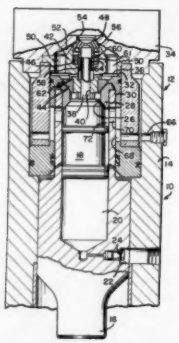
An automatic apparatus for scarfing semifinished products in steelworks and the like, comprising a plurality of working members such as cutters or the like, mounted staggered on a frame mobile preferably in a substantially horizontal direction and positionable above at least one piece on which scarfing is to be carried out, a programmer unit which can be preset in relation to the location of the defects to be eliminated in said pieces, means connecting said programmer unit to said mobile frame so as to make said working members act on said defect locations and means for operating said working members and moving said mobile frame.

3,822,633

CONTROL MEANS FOR A FLUID-POWERED DEVICE

Jack B. Ottestad, La Jolla, Calif., assignor to Impulse Products Corporation, San Diego, Calif.

Filed Aug. 10, 1972, Ser. No. 279,694
Int. Cl. F01b *7/18*; **F01l** *15/16*
U.S. Cl. 91—224 **10 Claims**



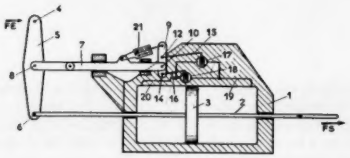
Fluid control means, employing a pair of valving members, to automatically cycle the operation of the device. One valving member is translated in one direction, as the device is fluid-charged, to a point at which said one valving member opens fluid passages to a triggering chamber to fire the device. The second valving member holds the triggering chamber open to venting, to drain leak-through fluid, until the device is about to fire. Then, just prior to the firing, the first valving member opens passages to pressured fluid which drives the second valving member into closure of vent passages to halt the venting of the triggering chamber. Firing of the device returns the first valving member in the alternate direction for re-charging of the device.

3,822,634

HYDRAULIC SERVO MECHANISM

Jacques Faisandier, 32, Bd. Felix Faure 92 Chatillon-sous-Bagneux, Chatillon-sous-Bagneux, France

Continuation of Ser. No. 18,732, March 11, 1970, abandoned.
This application Feb. 11, 1972, Ser. No. 225,687
Claims priority, application France, Apr. 1, 1969, 69.09971
Int. Cl. F15b *9/10*
U.S. Cl. 91—384 **6 Claims**



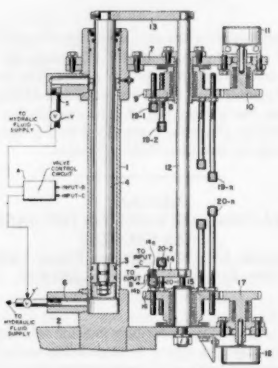
A hydraulic servo mechanism with two servo valves that normally operate in parallel. When one of the valves becomes seized a differential mechanism causes the valve to effectively operate differentially. In result, the gain of the mechanism is increased so that the operative valve produces a mechanism output substantially equivalent to the output when both valves are operating.

3,822,635

APPARATUS FOR CONTROLLING THE UPWARD AND DOWNWARD MOVEMENTS OF AN ELEVATOR

Matsuo Nishimura, Tokyo, Japan, assignor to Yasui Sangyo Company Limited, Shizuoka-ken, Japan

Filed Nov. 20, 1972, Ser. No. 305,506
Int. Cl. F15b *13/04*, *11/08*
U.S. Cl. 91—410 **2 Claims**



An apparatus for controlling the upward and downward movements of a piston rod of a hydraulically operated cylinder on a base in which a bracket is rigidly mounted on the

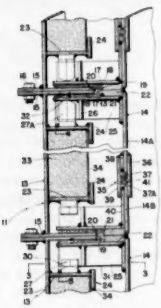
cylinder and upper and lower rotary members are rotatably mounted on the base and bracket, respectively. A control rod having its top end operably connected to the piston rod extends in parallel with the latter and slidably through the center of the upper rotary member and through the bracket so that the control rod is axially movable with the piston rod. The upper and lower rotary members have mounted thereon sets of elongated stops having different lengths and extending toward each other so that each of the upper stops cooperates with the corresponding lower stop to define therebetween a gap of a dimension different from those defined between other pairs of stops. The control rod has an engagement member extending laterally therefrom. The rotary members are rotatable to move a selected pair of stops into the path of the movement of the engagement member so that the latter engages the selected pair of stops. Limit switches are provided to discontinue the fluid pressure supply to the cylinder when the engagement takes place.

3,822,636

INSULATED SMOKESTACK CONDUITS

Brian Chadwick, 1 Fieldstone Bay, Winnipeg, Manitoba, Canada

Filed Oct. 16, 1972, Ser. No. 297,787
Int. Cl. F23j *11/00*; F16l *3/16*
U.S. Cl. 98—60 **4 Claims**



An outer cylindrical casing is provided and a concentrically located inner cylindrical casing is supported therein with means cooperating between the inner and outer casing to permit radial and longitudinal expansion of the inner cylindrical casing without transferring the stresses to the outer casing. The means cooperating between the two casings include floating support and centering devices. Insulation is provided between the casings and the heat reflecting shield between the insulation and the inner casing reduces transfer of heat from the inner casing to the outer casing.

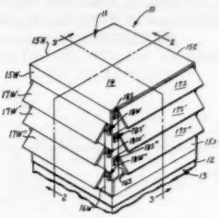
3,822,637

CHIMNEY DRAFT CONTROL DEVICE

James T. Whitlock, 833 Vannah Ave., Louisville, Ky. 40223

Filed Apr. 9, 1973, Ser. No. 348,952
Int. Cl. F23l *17/02*
U.S. Cl. 98—74 **3 Claims**

The present invention provides a draft control device for a chimney of a fireplace and the like. Basically, the device of the present invention comprises a generally hollow box-like member having six sides including one open side that can be fixed over the top of a chimney and a closed side opposite from that one side, and four other sides, including two sets of opposite sides, each having a vent. At least one shutter is pivoted on the member adjacent each of the side vents for movement by wind forces and rigid linkage means are provided for pivotally interconnecting the shutters for each of the sets of the vented opposite sides of the member to provide two shutter sets wherein one shutter for each of the two sets of opposite vented sides of the member will be moved away from its vent when the other shutter of the set is moved towards its



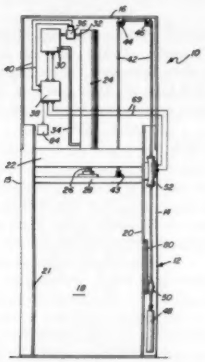
vent by pivotal movement of the one shutter of the set by the wind forces. In particular accordance with the present invention, the linked shutters of one of the two shutter sets have their pivotal mountings to the member offset from those of the other of the shutter sets so as to avoid jamming of the linkage means.

3,822,638

FULL LEVEL INDICATOR FOR REFUSE COMPACTOR

Eugene Merkin, Old Forge, Pa., assignor to Union Environmental Corporation, Philadelphia, Pa.

Filed Oct. 17, 1972, Ser. No. 298,381
Int. Cl. B30b *15/22*
U.S. Cl. 100—52 **23 Claims**

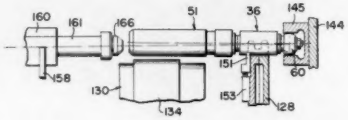


A secondary control system for indicating when the compaction chamber of a refuse compactor is filled to capacity comprises a flexible cable strung over two pulleys secured to the ceiling of the compactor. One end of the flexible cable is secured to the compactor platen while the other end is secured to a free-hanging weight, and a "bullet" is attached to the flexible cord above the weight. A sleeve is positioned above the bullet, and a conventional switch is secured to the sleeve in such a way that passage of the bullet through sleeve triggers the switch. During compaction, downward travel of the compactor platen pulls the bullet into the sleeve and thereby triggers the conventional switch. If the compaction chamber is full of compacted garbage, the bullet remains in the sleeve, and the conventional switch remains triggered when a pressure sensitive switch indicates the end of the compaction stroke. Simultaneous activation of the conventional switch and the pressure sensitive switch indicates to the apparatus control system that the compaction chamber is filled to capacity.

3,822,639
APPARATUS FOR PREVENTING PRINTING OF AN EMPTY MANDREL

Wesley J. Szpitalak, Palos Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Division of Ser. No. 242,110, April 7, 1972, which is a division of Ser. No. 501,372, Oct. 22, 1965, Pat. No. 3,683,799. This application Sept. 24, 1973, Ser. No. 399,830
Int. Cl. B41f *17/22*
U.S. Cl. 101—40 **3 Claims**



An automatic coating and printing machine wherein can bodies and like tubular members are automatically positioned on mandrels and thereafter serially presented to coating and printing blankets wherein the necessary coating and printing is effected thereon with the mandrels being rotated as the can bodies carried thereby contact the blankets of the coating and printing cylinders to transfer coating and printing materials to the can bodies. Thereafter, the appropriately coated and printed can bodies are automatically transferred from the mandrels to another conveyor. The mandrels are so mounted wherein when no can body is on a mandrel, the mandrel does not come into contact with the printing or coating blankets.

3,822,640
ELECTROMAGNETICALLY-ACTUATED PRINTING MECHANISM

Tsuneta Kawakami, Funabashi; Seiki Mizutani, Matsudo, and Yasuyoshi Kaneda, Tokyo, all of Japan, assignors to Kabushiki Kaisha Seikosha, Tokyo, Japan

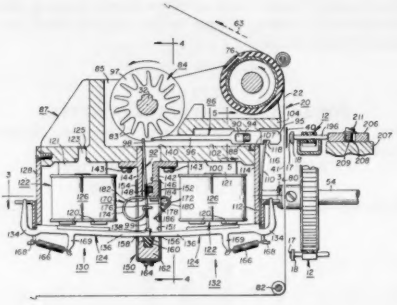
Filed Aug. 16, 1972, Ser. No. 281,188
Claims priority, application Japan, Aug. 17, 1971, 46-62472
Int. Cl. B41j *7/48*
U.S. Cl. 101—93 C **9 Claims**

A printing mechanism comprises a rotary print drum having around the periphery thereof a series of circumferentially spaced-apart rows of print type, a drive system for electromagnetically rotating the print drum in an intermittent manner to successively position the rows of type in a print position, paper feed means for feeding a paper strip to be printed on past the print drum, and an electromagnetically actuated print hammer for striking one of the rows of print type while same is stationary in the print position to print the information contained on that row of type on the paper strip. The drive system comprises a ratchet wheel connected to the print drum, two pawls engageable with different teeth of the ratchet wheel, two electromagnets responsive to alternate pulse signals for electromagnetically reciprocating the pawls in alternate sequence to effect intermittent rotation of the print drum, and an electric control circuit for alternately applying pulse signals to the electromagnets. The operation of the paper feed means is synchronized with the rotation of the print drum to incrementally advance the paper strip one space per one revolution of the print drum and the print hammer is electromagnetically actuated one time during each revolution of the print drum to strike one of the rows of type while same is at rest in the print position.

3,822,641
IMPACTOR ASSEMBLY FOR PRINTERS

Egon S. Babler, Northbrook, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed July 3, 1972, Ser. No. 268,238
Int. Cl. B41j *9/30*
U.S. Cl. 101—93 C **10 Claims**

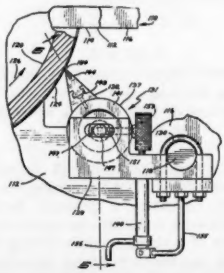


A plurality of self-restoring equally spaced apart print hammers selectively are driven lineally toward a printing position by continuously rotating impellers having equiangularly spaced radial impelling elements. Each impeller is effective through the agency of a rockable interponent, which is selectively elevated into the path of associated impelling elements upon latching of the armature of an electromagnet, for transmitting impeller force to a corresponding print hammer. An interponent when struck by its impeller is rocked for liberation from armature control, its descent and removal from the path of associated impelling elements being effected by a spring.

3,822,642
APPARATUS FOR REMOVING FOREIGN PARTICLES FROM A LITHOGRAPHIC PRESS

Gordon L. Grindeland, 7526 Harriet Ave., Minneapolis, Minn. 55423

Continuation-in-part of Ser. No. 167,920, Aug. 2, 1971, abandoned. This application July 26, 1972, Ser. No. 275,281
Int. Cl. B41f *35/00, 41/00*
U.S. Cl. 101—425 **6 Claims**



A pickup blade of plastic material is slidably mounted for longitudinal movement in a block which is pivotally mounted

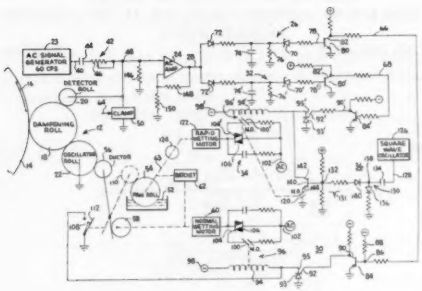
to a lithographic press frame. An actuating means is operable from a position where an operator can view the finished printed product coming from the press. The actuating means pivots the block to bring the pickup blade into contact with an entire longitudinal edge of a lithographic plate cylinder to pick up foreign particles or to dislodge them sufficiently so that they will be picked up by other existing rollers and removed from the printing surface. The pickup blade can be slid longitudinally off the block to position clear of the press and can then be replaced with a new blade or cleaned and returned to position in the block. This can be done without stopping the press and without inserting the operator's fingers into dangerous positions during operation of the press. In order to obtain rigidity of the support of the blade across the entire longitudinal edge of the plate cylinder, the blade and block can be mounted on a relatively thick walled cylindrical tube which is mounted to the press frame to rotate about its central longitudinal axis.

3,822,643

DAMPENING CONTROL CIRCUIT FOR OFF-SET PRINTING APPARATUS

Donald G. Mikan, Ridgefield, and Achille A. Presti, Stamford, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Jan. 26, 1973, Ser. No. 326,888
Int. Cl. B41l *23/04*
U.S. Cl. 101—148 **17 Claims**



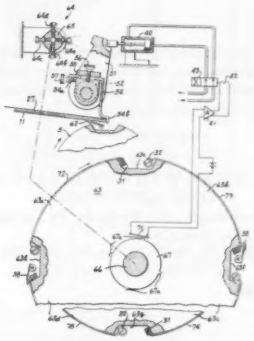
A control circuit for an off-set printing apparatus is described whereby a dampening roll, which is used to wet a printing surface with an ink repelling liquid, is automatically maintained at the proper level of wetness from start-up through completion of the printing operation. A rapid wetting network is employed to quickly wet the dampening roll by rotating a pan roll at a greater than normal speed. An AC liquid impedance signal is generated by applying an AC excitation signal across the dampening roll to sense its liquid impedance and thus the amount of liquid on the dampening roll. An AC amplified liquid impedance signal drives a pair of threshold detectors which respectively recognize a normally dry operating condition and an excessively dry condition of the dampening roll. The output signals of the threshold detectors operate a normal wetting motor and a rapid wetting motor with the latter motor limited in its wetting operation to bring the dampening roll quickly to an acceptable liquid dampening level.

3,822,644

APPARATUS FOR MAINTAINING REGISTRY BETWEEN THE PLATES OF A MULTIPLE PLATE CYLINDER PRESS AND SHEETS SUPPLIED THERETO

Ivaldo Gazzola, deceased, late of Lausanne, Switzerland (by Eles Gazzola); Lanfranco Gazzola, Lausanne, Switzerland (heirs); Salvatore F. D. Amato, Floral Park, and Chauncey P. Foote, Jr., Katonah, both of N.Y., assignors to American Bank Note Company, New York, N.Y.

Filed Oct. 30, 1972, Ser. No. 302,126
Int. Cl. B41f *33/06*
U.S. Cl. 101—242 **7 Claims**



Apparatus for supplying sheets to be printed to the plate cylinder of a multiple plate intaglio press, including means for changing the registration of successive sheets with the cylinder to correspond with variations in the positions of successive plates on the cylinder with respect to the sheet feeding means.

The sheets move along an inclined feed board as they approach the first sheet transfer cylinder. The motion of each sheet is blocked by a movable stop means as it nears the end of the feed board. While the sheet is stopped, a set of grippers on the first sheet transfer cylinder engage the sheet at a location determined by the position of the stop means. The stop means is then retracted and the first and subsequent transfer cylinders then move the sheet along to the plate cylinder. The registry of the sheet with the plate cylinder is determined by the sheet blocking position of the stop means.

The sheet blocking position of the stop means is shiftable and is shifted for successive sheets, to correspond to the differences in position of the successive plates on the plate cylinder. The sheet blocking position is shifted synchronously with the rotation of the plate cylinder, either in response to a pick-up unit which detects a certain angular position of the plate cylinder and operates the stop shifting means, or by a synchronous drive between the plate cylinder and a shaft on the stop shifting means.

3,822,645

ADVANCED REINFORCED GRAIN DESIGN

Earl L. Alexander, 19380 Halsted St., Northridge, Calif. 91324

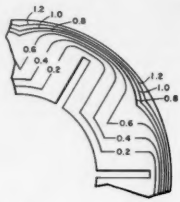
Filed Nov. 23, 1962, Ser. No. 240,205
Int. Cl. F42b *1/02*
U.S. Cl. 102—102 **4 Claims**

A propellant grain comprising:

a solid cylindrical decomposable polymeric matrix,

a reinforcing metal lattice comprising an initially continuous and circumferentially aligned metal filament imbedded entirely throughout said matrix, comprising at least one continuous metal filament element primarily traversing a direction which is not parallel to any plane of

symmetry in said matrix, said matrix and said lattice forming an elongated generally cylindrically-shaped propellant grain having an inner cavity,



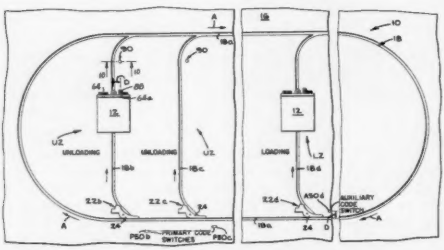
a plurality of recesses provided within said grain, said recesses communicating with said inner recess and intersecting a portion of said initially continuous and circumferentially aligned filaments.

3,822,646

CONVEYOR SYSTEM WITH PRIMARY AND AUXILIARY CODE MECHANISMS

Chester A. Rosenberger, Jr., Perkasie, Pa., assignor to FMC Corporation, San Jose, Calif.

Filed Oct. 30, 1972, Ser. No. 302,374
Int. Cl. B61j *3/00;* **B41j** *1/04*
U.S. Cl. 104—88 **12 Claims**



A conveyor system is disclosed in which carriages with tow pins are towed along the floor by engagement of the tow pins with a drive chain beneath the floor. The paths of carriage travel include an endless main line and a plurality of spur lines. Switches at the junctions of the main and spur lines are operated by code probes on the carriages to direct the carriages into the appropriate spur lines. One probe on each carriage is actuated as the carriage leaves a spur line empty after unloading to code the carriage for a spur line for empty carriages. The probe so actuated also serves to disable the mechanism by which the other code probes are read to prevent return of the empty carriage to the spur line for which it was originally coded when full.

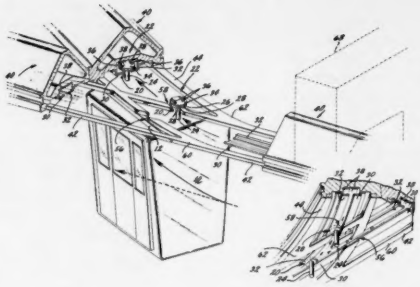
3,822,647

PASSIVE SWITCHING SYSTEM

Charles C. Hill, and James A. Ross, both of La Jolla, Calif., assignors to Rohr Industries, Inc., Chula Vista, Calif.

Filed July 9, 1973, Ser. No. 377,608
Int. Cl. H02k *41/04*
U.S. Cl. 104—130 **11 Claims**

Apparatus for the switching of a magnetically suspended vehicle from a primary guideway through a curved intersection to a secondary guideway. The vehicle is equiped with a pair of electromagnetic motors which provide a magnetic force to suspend the vehicle from a pair of support rails positioned above and in a superimposed relationship with the electro-magnetic motors. The rails at the intersection of the guideways have increased width so as to maintain an essentially superimposed relationship with their respective electromagnetic motor throughout the curve of the intersection



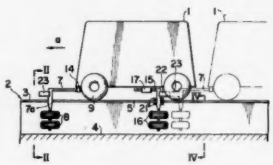
and one rail of each guideway has at least one opening to allow the vehicle structure to pass through and the remaining rail of each guideway forms a unitary rail member. The vehicle is switched by a relative speed difference between the motors caused by input power frequency differences.

3,822,648

GUIDING SYSTEM FOR STEERING A VEHICLE

Takemochi Ishii, and Masaki Koshi, both of Tokyo, Japan, assignors to Japan Society for the Promotion of Machine Industry, Tokyo, Japan

Filed Aug. 30, 1972, Ser. No. 284,713
Claims priority, application Japan, Aug. 31, 1971, 46-66792
Int. Cl. B61f *9/00*
U.S. Cl. 104—245 **7 Claims**



A guiding system for a computer controlled vehicle including a flat track guide-way and a guide channel coextensive with and under the track surface. The vehicle is equipped with a sterring guide link which carries at least two guide wheels in an offset or staggered relationship on a lower crank portion. Two of the guide wheels follow the vertical inner walls of the guide channel. The system further includes a safety mechanism, for preventing derailment, in the form of an additional linkage carrying two additional guide wheels. Emergency braking means is also provided.

3,822,649

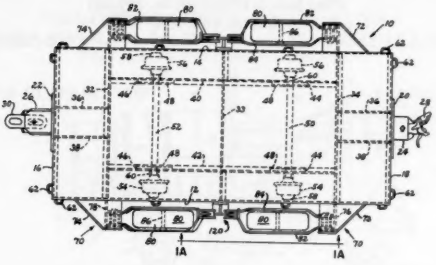
RAIL-RUBBER MINE CAR

Howard J. Walk; Ervin I. Pietsch, both of Saint Charles, and Garth R. Smith, Saint Peters, all of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed June 27, 1973, Ser. No. 374,015
Int. Cl. B61f *13/00*
U.S. Cl. 105—215 C **26 Claims**

In accordance with the present invention a rail-rubber mine car is provided having rail wheels and rubber tire wheels on

the car for moving the car close to the mining operation. The rubber wheels are movable between a lower position wherein the car is supported by the rubber tires and an upper position for running on rails. The car preferably comprises two rubber tires on each side of the car which are pivotally mounted upon yokes at opposite ends of the car. The distal ends of the yokes for the respective wheels are located at about the mid point of the car and can be raised and lowered by the operator without



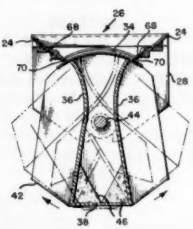
walking to opposite ends of the car. An automatic locking device is provided which urges the yokes into the locked position. A spring assist is provided to aid the operator in raising the rubber tires into the upper position. Various shaped bed contours may be utilized to provide a car with or without sides. A plurality of stake pockets may be provided around the circumference of the bed sections without sides to allow the use of removable side sections. Spacers may be provided on the axles to allow use of the car on a variety of track gauges.

3,822,650

CONTROL BALLAST DOOR FOR HOPPER CANS

Joseph G. Fearon, Boise, Idaho, assignor to Morrison-Knudsen Company, Inc., Boise, Idaho

Filed Aug. 24, 1973, Ser. No. 391,499
Int. Cl. B61d *7/06*
U.S. Cl. 105—239 **4 Claims**



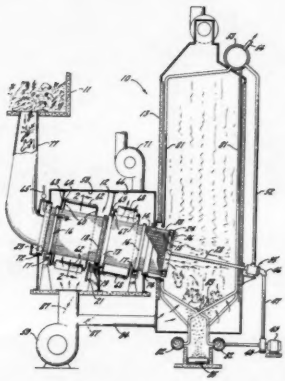
An improved discharge control door over that described in U.S. Pat. No. 3,654,872 is described controlling flow of material from railway hopper cars or other containers holding material. The improved discharge control door includes curved discharge plates allowing better and greater material flow therethrough when in the open position, counterweight means keeping the door in its normally closed position covering the discharge opening and a spring biased friction element bearing against the side walls of the discharge control door which, in the absence of a force other than the material flowing over the discharge plates, keeps the door in a set open position.

3,822,651

WATER COOLED KILN FOR WASTE DISPOSAL

David W. Harris, 7135 Hollywood Blvd., Los Angeles, Calif. 90046, and Chadwell O'Connor, 2024 Galaxy Dr., Newport Beach, Calif. 92660

Filed Sept. 4, 1973, Ser. No. 394,050
Int. Cl. F23g *5/06*
U.S. Cl. 110—10 **4 Claims**



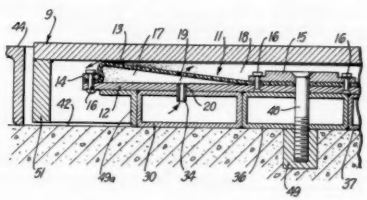
A rotary kiln formed by a plurality of pipes joined to define an inner cylindrical surface and being interconnected to permit water flow through the pipes. Water from the pipes is circulated to a steam drum for steam removal. The pipes are joined so as to define a plurality of intermediate openings for gas porosity and provision is made for introducing controlled amounts of air into the kiln and for enclosing and capturing volatile gases generated by the burning. A nonclogging waste chute feeds the kiln, and an associated furnace both further utilizes the heat of combustion and provides a static burning location for exceptionally large items of waste.

3,822,652

ROTARY AIR CUSHION TRANSPORTER

Robert E. Burdick, and Baxter K. Wolf, both of Santa Barbara, Calif., assignors to Rolair Systems, Inc., Santa Barbara, Calif.

Filed Dec. 7, 1972, Ser. No. 313,147
Int. Cl. A47b *11/00*
U.S. Cl. 108—139 **4 Claims**



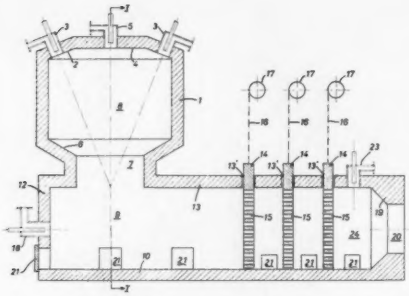
A low profile rotary transporter having a turntable supported by a plurality of air bearings. A separate tubular platform section underlying each air bearing and having a supply portion for carrying air under pressure from a supply line to the air bearing and a damping portion communicating with the air bearing. Each air bearing and its associated platform are fixedly mounted on a ground surface and the turntable is removably mounted on a positioning rod in the ground surface.

3,822,653

INCINERATING FURNACE FOR FLUID AND SLUDGED REFUSE

Salvatore Ghelfi, 8610 Uster Bordackenstrasse 18, Uster, Switzerland

Filed Jan. 8, 1973, Ser. No. 321,986
Int. Cl. F23g 5/12
U.S. Cl. 110—7 R 6 Claims



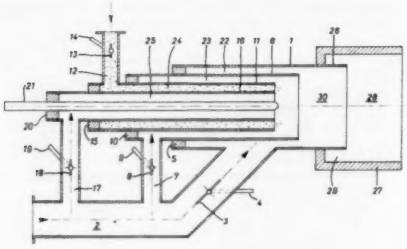
The present invention relates to an incinerating furnace for burning or incinerating liquid or sludged refuse and waste in which the materials to be incinerated are introduced or injected through the burners or injectors. The furnace comprises at least a vertical combustion chamber and a number of burners mounted in the upper part of said vertical combustion chamber, said burners being arranged in spaced relationship to one another and having their injection or flame axis inclined downwardly and directed substantially onto a common point on the central axis of the combustion chamber, and further comprising an outlet chamber at the lower end of said combustion chamber.

3,822,654

BURNER FOR BURNING VARIOUS LIQUID AND GASEOUS COMBUSTIBLES OR FUELS

Salvatore Ghelfi, 8610 Uster Bordackerstrasse 18, Uster, Switzerland

Filed Jan. 8, 1973, Ser. No. 321,987
Int. Cl. F23g 7/00
U.S. Cl. 110—7 S 4 Claims



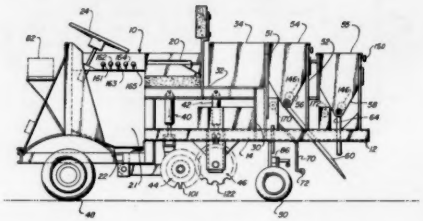
The present invention relates to a burner for burning various liquid and gaseous combustibles or fuels simultaneously, i.e., a burner which can operate and work simultaneously with gaseous and liquid combustibles and with liquids and or gas containing materials to be incinerated. The burner of the invention comprises a first tubular outer shell and a plurality of concentrically arranged tubular inner shells forming a number of ring shaped chambers opening into a common mixing chamber provided at the front end of said first shell each of said chambers communicating with a source of combustion air or a source of fuels, the burner further comprising means for the controlled feeding of combustion air or fuel into said chambers.

3,822,655

LAWN CONDITIONING VEHICLE

Dale Gene Benedict; Louis Richard Blasi, and Lowell G. Wilson, all of Marysville, Ohio, assignors to The O. M. Scott & Sans Company, Marysville, Ohio

Filed June 5, 1972, Ser. No. 259,441
Int. Cl. A01c 5/00
U.S. Cl. 111—1 8 Claims



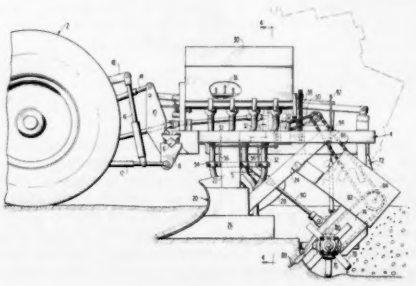
A self-contained, motorized riding vehicle is disclosed which provides a unitary apparatus for performing a series of operations on a lawn simultaneously. The unit has its own motor drive and has a plurality of operative implements such as an alignment of spiking members and an alignment of lawn slicing members. Also provided are a plurality of storage hoppers dispensing in a spread pattern solid or granular materials such as seed pesticide and feeding agents. The unit also has a pressurized liquid storage and dispensing system. All these operative components can be controlled individually from the driver's compartment of the vehicle. In operative sequence, from front to rear, are located the earth perforating or spiking members and earth slicing members. Rear of these members is a nozzle for discharging the liquid in a transverse pattern the full width of the vehicle body. Rearmost is a common spreader outlet from the discharge of the two hoppers to comingle solid materials discharged from these hoppers, such as seed granular nutrients and/or weed-killing materials.

3,822,656

SUBSOIL AMENDMENT MATERIAL INCORPORATING METHOD AND APPARATUS

William F. Lalor, 4505 Creedmoor Rd., Raleigh, N.C. 27612

Filed July 7, 1972, Ser. No. 269,882
Int. Cl. A01c 5/00
U.S. Cl. 111—14 10 Claims



Method and apparatus for preparing the soil prior to see planting. The apparatus is preferably drawn by a tractor an

includes a plow which turns the topsoil to expose the subsoil as the apparatus advances. Dispensing apparatus conducts soil amendment material from a hopper through a plurality of tubes to a box behind the plow. The box has discharge outlets which are arranged across a substantial width of the furrow formed by the plow. A rotary tiller is positioned behind the box and mixes the amendment material into the subsoil to a depth greater than the plow.

3,822,657

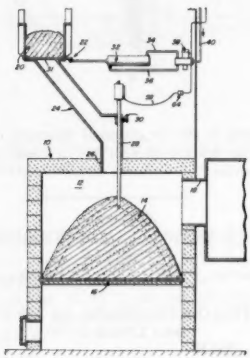
FUEL FEEDING METHOD AND APPARATUS

Cecil L. Midkiff, P.O. Box 308, Edmonds, Wash. 98020

Filed Apr. 10, 1973, Ser. No. 349,756

Int. Cl. F23k *3/22*

U.S. Cl. 110—101 CD **9 Claims**



The height of a cone, mound, or pile of fuel in the combustion area of a furnace is controlled by arranging a temperature sensor on a portion of a probe normally penetrating the burning fuel. When the fuel burns down sufficiently to expose the sensor to direct heat from the pile, a signal is sent from the sensor to a relay which opens a valve mechanism to feed fuel into the furnace. A timer may be used to limit the amount of fuel delivered.

3,822,658

PUNCH-TAPE-CONTROLLED SEWING APPARATUS

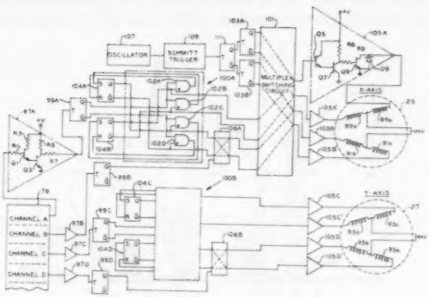
William R. Conner, Jr., Shelbyville, Tenn., assignor to Stahl-Urban Company, Brookhaven, Mich.

Continuation-in-part of Ser. No. 235,253, March 16, 1972, Pat. No. 3,771,477. This application Apr. 27, 1973, Ser. No. 355,076

Int. Cl. D05b *21/00*

U.S. Cl. 112—121.12 **7 Claims**

Apparatus for automatically controlling movement of material for sewing by a sewing machine in response to a pattern determined by a punch tape. A positioning device whose movement is controlled along respective axes by a pair of stepping motors effects relative movement of the material to be sewed with respect to the sewing machine. Each of the stepping motors is of the type having a plurality of windings producing stepwise movement of the motor shaft when energized with alternate changes in polarity. A punch-tape reader detects uncoded perforations progressively arranged in a predetermined sequence in channels of a punch tape with two channels controlling each axis of movement. Solid state control circuitry for each stepping motor is interconnected with the tape reader. The circuit includes a first flip-flop responsive to detection of certain perforations in the two tape channels to alternately be switched between two stable states, a pair of flip-flops adapted for energizing the windings of one of the stepping motors, and a steering means including a plurality of AND gates interconnecting the first flip-flop to the pair of flip-



flops. The arrangement provides automatic sewing of the material at high speed according to the predetermined pattern.

3,822,659

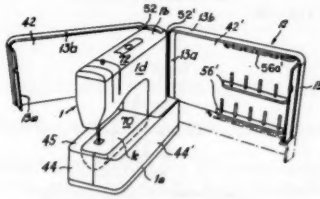
PORTABLE SEWING MACHINE AND CASE

Heinz Maag, Gumligen, Switzerland, assignor to Fritz Gegauf Aktiengesellschaft Bernina-Nahmaschinenfabrik, Steckborn, Sweden

Filed Jan. 12, 1973, Ser. No. 323,050

Int. Cl. D05b *77/00*

U.S. Cl. 112—258 **4 Claims**



A portable sewing machine and case comprises a sewing machine having a lower usually horizontal free arm portion, an upright rear column portion and a generally horizontally extending top portion is provided with case-forming cover elements. The cover elements are pivoted about vertical axes which extend up adjacent the rear end of the column so that the covers may be folded inwardly to encompass the sides of the sewing machine. The cover elements advantageously include inturned edges which either engage directly over a base plate for the sewing machine or over a cover for the free arm portion which extends upwardly from the base flush with the top surface of the free arm portion. The cover elements for the free arm portion may be similarly pivotally mounted about an axis which extends vertically and which is located at the rear end of the column portion of the machine.

3,822,660

METHOD AND APPARATUS FOR SALVAGING A SUNKEN VESSEL

Guy C. Throner, Jr., Saratoga, Calif., assignor to FMC Corporation, San Jose, Calif.

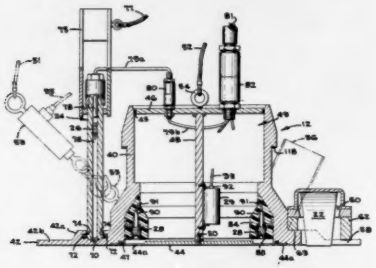
Filed Jan. 8, 1973, Ser. No. 322,036

Int. Cl. B63c *7/12*

U.S. Cl. 114—50 **14 Claims**

For salvaging a sunken vessel, there is disclosed a closed, or water-tight, fitting which initially is held on the hull by mag-

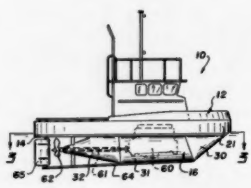
nets, but which is thereafter securely fastened to the hull by the detonation of rivet guns on the fitting. A cutting charge in the fitting is detonated to blast a hole in the hull, and a clearing charge is detonated to remove the cover from the fitting. A tube is then connected to the fitting to introduce buoyant plastic or glass spheres through the fitting and into the hull to float the vessel.



3,822,661
SHIP'S HULL

Robert Simpson, P.O. Box 159, Lantzville, British Columbia, Canada

Filed Oct. 4, 1972, Ser. No. 294,884
Claims priority, application Canada, Oct. 2, 1972, 152973
Int. Cl. B63b *1/04, 1/12*
U.S. Cl. 114—56 **4 Claims**



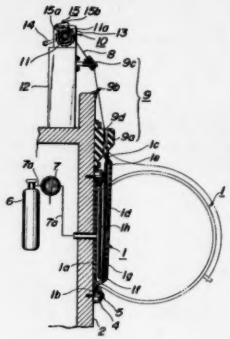
A ship's hull having a flat plate mounted above a keel-like portion formed of a rounded bow section, a cylindrical main section, and a conical stern section. The method of fabricating and assembling the hull.

3,822,662
SAFETY DEVICE FOR SHIP

Katsuo Morita, Hokkaido; Sadao Hashimoto, Hokkaido, and Hiroshi Miyamoto, Yokohama, all of Japan, assignors to Bridgestone Tire Company Limited, Chuo-ku, Tokyo and Hakodate Seimo Sengu Kabushiki Kaisha, Hokkaido, both of, Japan

Filed Oct. 12, 1972, Ser. No. 296,750
Claims priority, application Japan, July 24, 1972, 47-87034; July 24, 1972, 47-73933
Int. Cl. B63b *43/14*
U.S. Cl. 114—123 **9 Claims**

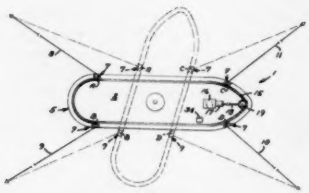
A ship safety device comprising normally-folded inflatable gas bags secured to broadsides of a ship, which gas bags are connected to a pressure-gas source through a valve for selective inflation in emergency. Each gas bag has a flange, which is secured to the ship broadside by fixtures, and two folding portions extending in the longitudinal direction of the ship for facilitating the folding thereof in an easily inflatable and deflatable fashion.



3,822,663
METHOD AND APPARATUS FOR MOORING FLOATING VESSELS

Henry C. Boschen, Jr., Rt. 4 Box 283, Chippewa Falls, Wis. 54729

Filed Oct. 10, 1972, Ser. No. 296,079
Int. Cl. B63b *21/50*
U.S. Cl. 114—206 R **6 Claims**



A method and apparatus for mooring floating vessels (e.g. ships) generally over a fixed location on the water bottom. The vessels are provided with guide means (e.g. a track) which encircle the hull of the vessel along a line which is spaced at or above the Plimsoll line and at or below the top edge of the hull. A plurality of movable carriages are carried by the guide means for separately attaching a plurality of anchor lines to the hull and for controlling the length thereof. Means are provided for selectively positioning the carriages at desired points along the track.

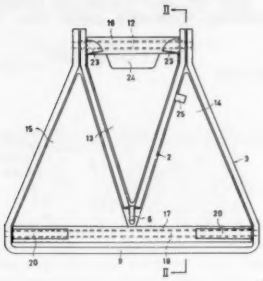
3,822,664
ANCHOR

John Gunnar Hedman, Postfack 96, S-941 01 Pitea, Sweden

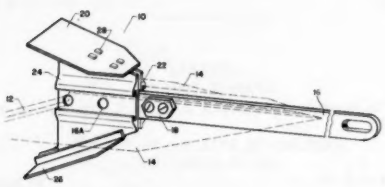
Filed Feb. 3, 1972, Ser. No. 223,254
Claims priority, application Sweden, Feb. 8, 1971, 1524/71; Mar. 19, 1971, 3552/71
Int. Cl. B63b *21/24*
U.S. Cl. 114—208 R **18 Claims**

An anchor made up of at least two frame parts pivotally interconnected, at least one fluke hingedly connected to each

frame part, one frame part being pivotable for at least 180° from an unfolded position to a folded position into a second frame portion, the first frame part and its fluke being received between the flukes of the second portion.



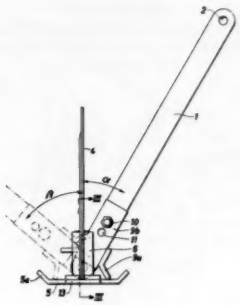
3,822,665
ANCHOR CROWN CONSTRUCTION
Daniel Comstock Hungerford, North Palm Beach, Fla., assignor to Brunswick Corporation, Skokie, Ill.
Filed Aug. 25, 1972, Ser. No. 283,914
Int. Cl. B63b *21/44*
U.S. Cl. 114—208 R **4 Claims**



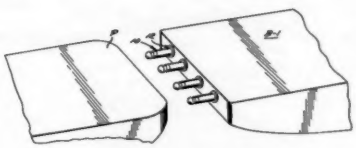
A twin-fluke anchor having an improved crown construction which eliminates welding seams while improving strength and corrosion resistance. The improved crown is comprised of four plates arranged in a box-like structure, the plates being rigidly coupled together by providing malleable projections along the edge faces of the parallel side plates, each projection being received through a separate aperture in the top or bottom plate and being greater in length than the thickness of the top or bottom plates. Each protruding portion is then hammered, causing the malleable material to spread over the top of the aperture whereby the plate is then retained rigidly to the side plates.

3,822,666
ANCHOR
Erling Blomberg, Vastergatan 3, Goteborg, Sweden
Filed May 15, 1973, Ser. No. 360,602
Int. Cl. B63b *21/44*
U.S. Cl. 114—208 R **5 Claims**

An anchor comprising a shank, two main flukes, an auxiliary fluke, the main and auxiliary flukes being pivotally connected to the lower end of the shank with the pivot axis at right angles to the shank, the main flukes being in the form of flat plates, the extension of which in one direction substantially coincides with the pivot axis, the auxiliary fluke extending substantially in a plane parallel to the pivot axis and at right angles to the main flukes, and an abutment member displaceable and securable to different positions on the shank, the abutment member having abutment points adapted to cooperate with corresponding abutment points on the auxiliary fluke to effect different maximum angles of swinging of the main flukes with respect to the shank when the abutment member is displaced toward or away from the pivot axis.



3,822,667
FLEXIBLE CONNECTION FOR ARTICULATING VESSELS
John E. Marriner, 555 E. Ocean Blvd., Long Beach, Calif. 90802
Division of Ser. No. 251,021, May 8, 1972, and a continuation-in-part of Ser. No. 88,938, Nov. 12, 1970. This application Sept. 21, 1973, Ser. No. 399,423
Int. Cl. B63b *21/56*
U.S. Cl. 114—235 R **5 Claims**



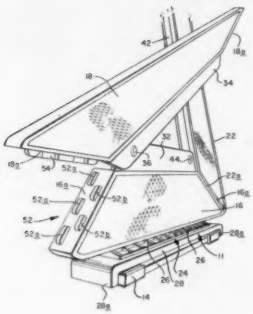
A coupling apparatus interposed between two vessels to connect such vessels in an articulated manner. The vessels may be components of a barge train. The coupling apparatus permits the barges to be individually removed from such train. The apparatus includes one or more resilient posts removably interposed between the vessels. The resiliency of the posts permits the posts to flex and bend for accommodating simultaneous relative movement in roll, pitch, yaw, surge and heave between the vessels resulting from wave action.

3,822,668

ROADSIDE WARNING DEVICE

Richard H. Schradieck, 235 Bear Hill Rd., Wellesley Hills, Mass. 02154, and Taisto A. Lehti, Salo, Finland, assignors to said Schradieck, by said Lehti

Filed May 23, 1973, Ser. No. 363,025
Int. Cl. E01f 9/10
U.S. Cl. 116—63 P 5 Claims



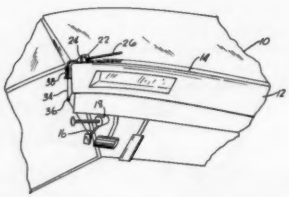
A foldable roadside warning device is composed of three reflective frame members, two of the frame members being of substantially equal length and being pivotally connected at their ends to the opposite ends of the third frame member. The first and second frame members are limited in their swing away from each other about their pivots so that they have to be forcibly spread apart in order for their free ends to meet one another. Interfitting surfaces on the free ends of the two frame members mate when the free ends meet so as to form a stable triangular frame which can then be supported upright in the roadway by a stand.

3,822,669

EMERGENCY BRAKE LEVER POSITION INDICATOR

Adam Schrag, Box 812, Salina, Kans. 67401

Filed June 5, 1973, Ser. No. 367,139
Int. Cl. G01d 21/00
U.S. Cl. 116—114 R 1 Claim



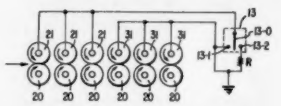
An elongated member is pivotally secured to the instrument panel of a vehicle at a point intermediate the ends but adjacent one end. Means interconnect the one end of the member to the emergency brake lever in such manner that when the lever is positioned to lock the brakes, the member is inclined with the other end raised and when the lever is positioned to unlock the brakes, the member is disposed horizontally. The means includes a cable extending between the one end of the member and the lever as well as a spring to damp the motion of the member and prevent oscillation.

3,822,670

LIQUID DEVELOPMENT APPARATUS FOR ELECTROPHOTOGRAPHY

Masamichi Sato; Isoji Takahashi; Takao Komaki, and Satoru Honjo, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 28, 1971, Ser. No. 213,089
Claims priority, application Japan, Dec. 28, 1970, 45-120320
Int. Cl. G03g 13/00
U.S. Cl. 118—637 3 Claims



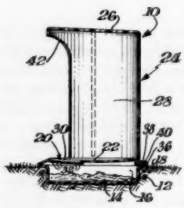
An electrophotographic liquid development apparatus comprising developing electrodes positioned face to face with a thin clearance therebetween to receive an electrophotographic material bearing an electrostatic latent image, means for supplying liquid development agent to the thin clearance to develop the latent image, and switching means in circuit with the developing electrode which directly faces the electrostatic latent image, the switching means being provided with at least two circuit paths to change the grounding resistance according to an original image used to form the latent image, wherein if the latent image comprises a linear drawing, a high resistance circuit path is employed and if the latent image is of a continuously toned nature, a low resistance circuit path is employed as the medium through which the developing electrode is grounded.

3,822,671

ANIMAL TOILET

Isobel K. Rosenberg, Woodslea R.D. No. 1, Landenberg, Pa. 19350

Filed June 20, 1972, Ser. No. 264,428
Int. Cl. A01k 29/00
U.S. Cl. 119—1 3 Claims



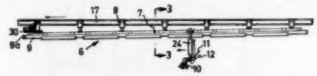
Animal toilet comprises holding tank for waste material. Tank has bottom wall and side wall that extends upwardly to peripheral edge portion. Platform rests upon peripheral edge portion and covers holding tank. Platform has at least one opening therein that communicates with interior of holding tank. Partial enclosure for platform is secured to platform and holding tank and includes roof portion spaced from and directly above platform and partial side wall portion extending between platform and roof portion.

3,822,672

MILKING INSTALLATION FOR COW STABLES

Stig Janson, and Ulf Stig Janson, both of Ryholms Gods, Moholm, Sweden

Division of Ser. No. 885,097, Dec. 15, 1969, Pat. No. 3,683,856. This application May 9, 1972, Ser. No. 251,733
Claims priority, application Sweden, Dec. 19, 1968, 17489/68
Int. Cl. A01j 05/00, 09/08
U.S. Cl. 119—14.11 13 Claims



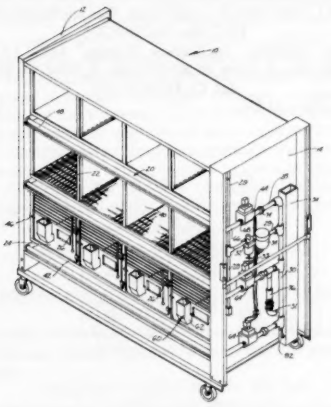
A milking installation for a milking stable having a line of milking stations for cows arranged side-by-side, comprising a number of teat cup clusters, each of which has teat cups manually interconnectible by hoses to milk and vacuum pipes. The clusters being mounted on a carriage which moves along the milking stations. The clusters are movable relative to the carriage on a guideway. During an inactive phase of the movement of the clusters relative to the carriage, the clusters are automatically disconnected from the cows and from the milk and vacuum pipes; while during an active phase of the same movement they may be manually connected to the cows and to the milk and vacuum pipes.

3,822,673

WATER FLUSHING EXCRETA REMOVAL SYSTEM FOR ANIMAL HOUSING SYSTEMS

John R. Benny, Cincinnati, Ohio, assignor to Hoeltge, Inc., Cincinnati, Ohio

Filed Feb. 16, 1973, Ser. No. 333,353
Int. Cl. A01k 1/02
U.S. Cl. 119—22 7 Claims



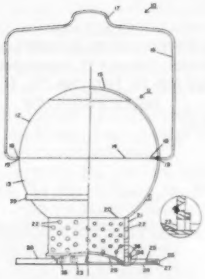
A water flushing excreta removal system for animal housing systems of the type having at least one tier of cubicles and an inclined surface disposed beneath the cubicles of each tier adapted to catch debris from the cubicles and provided with flush water supply means for the removal of the debris. The flush water supply means includes a flush tube suspended over the front of the inclined surface to generate a slow moving, well distributed flushing pattern over the inclined surface. A water flushing solenoid valve is connected by flexible hose to the flush tube. A supply manifold, which includes one branch for each tier of cubicles, with the branch connected to the solenoid valve, is connected to a source of water supply. A throttle-shut-off valve is located upstream of the supply manifold and control means are provided which will furnish timed sequential energization of the water flushing solenoid valves, permitting adjustment of the time interval between flush cycles, the length of tier flush time, and selection of various modes of operation.

3,822,674

BIRD FEEDER

Robert A. Tobin, 67 Lake Bluff Rd., Rochester, N.Y. 14622

Filed Mar. 21, 1973, Ser. No. 343,350
Int. Cl. A01k 5/00
U.S. Cl. 119—53 6 Claims



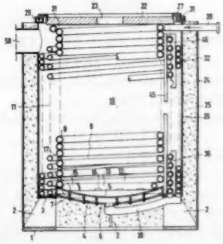
A bird feeder has a spherical container suspended from a wire yoke for pivoting freely about a horizontal diameter, and a pipe and feeder table are secured to the bottom of this sphere. The pipe surrounds a bottom opening of the sphere, the feeder table is secured to the bottom of the pipe, and the pipe has bottom openings above the feeder table to dispense birdseed onto the feeder table. A rim around the feeder table retains the birdseed and serves as a perch, a deflector extends up into the bottom of the pipe to guide the birdseed through the bottom openings of the pipe, peck holes are drilled into the pipe wall to make small seeds accessable to small birds directly through the pipe wall, and a drip ring is secured around the underside of the sphere.

3,822,675

BOILER FOR HEATING NON-BOILING HEAT TRANSFER LIQUIDS

Niklaus Rychen, Kanton Zurich, Switzerland, assignor to Nordalpina-Anstalt, Vaduz/Furstentum, Liechtenstein

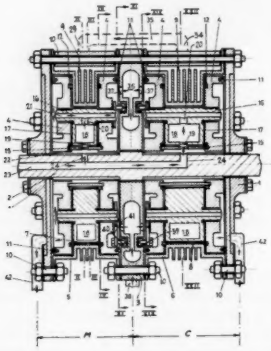
Filed Mar. 26, 1973, Ser. No. 344,564
Claims priority, application Germany, Mar. 28, 1972, 2215188
Int. Cl. F22b 27/08
U.S. Cl. 122—250 R 17 Claims



This invention relates to an improvement in a vertical boiler for heating non-boiling heat-transfer liquids having two tightly

wound axially symmetrically coiled pipe walls concentrically positioned at a distance with respect to each other inside an axially symmetrical housing, the external wall extending to the boiler bottom and radially delimiting the outside of a riser for flue gas, said riser surrounding the internal wall, aperture means in the upper end of said housing for the introduction of heating means, and a coiled pipe spiral constituting the boiler bottom, the improvement comprising an internal pipe wall which extends to the boiler bottom, at least said internal wall with the lowermost pipe winding being supported by the boiler bottom, and gaps between the lower coils of said internal pipe wall forming a connection between the space enclosed by said internal wall and said riser.

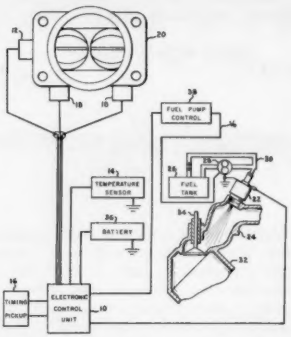
3,822,676
PENDULAR PISTON ROTARY EXPLOSION ENGINE
Ernest H. C. Richter, Aribau 177, Barcelona, Spain
Filed July 19, 1971, Ser. No. 163,599
Int. Cl. F02b *53/08*
U.S. Cl. 123—8.41 **4 Claims**



A pendular piston rotary explosion engine having two sections of which one section compresses air fed to the second section in which fuel is mixed with the air and fired, each section has a pair of crank discs within a cylinder, a Maltese-cross shaped filling member, a shaft through the center of said discs and filling member, but eccentric to the axis of its cylinder and pendulum shaped pistons rotatably carried by said crank discs within said filling members.

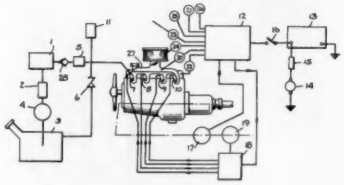
3,822,677
ELECTRIC FUEL PUMP CONTROL CIRCUIT FOR INTERMITTENT INJECTION ELECTRONIC FUEL CONTROL SYSTEMS
Junuthula N. Reddy, Horseheads, N.Y., assignor to The Bendix Corporation, Southfield, Mich.
Filed June 30, 1971, Ser. No. 158,351
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **8 Claims**

A fuel pump control circuit is disclosed herein to provide optimum fuel delivery at constant operating pressure to the fuel injector valve means of an electronically controlled fuel supply system. By energizing the pump in response to the engine operating parameters which determine the engine fuel requirement, a minimum of fuel in excess of the fuel requirement is recirculated from the area of the engine back to the fuel reservoir. In order to suitably energize the fuel pump, the pump is provided with a maximum voltage during the time period of the injection pulse with the energizing voltage decreasing thereafter so that a minimum of fuel is circulated



through the fuel supply system during the noninjection phase. This provides a variable level of average fuel pump energization.

3,822,678
HIGH SPEED FUEL INJECTION SYSTEM
Jacques Bassot, Paris, and Louis Monpetit, L'Etang La Ville (Seine et Oise), both of France, assignors to Societe Des Procedes Modernes D'Injection Sopromi, Les Mureaux, France
Continuation of Ser. No. 871,670, Nov. 10, 1969, Pat. No. 3,710,763, which is a continuation of Ser. No. 816,767, April 16, 1969, abandoned, which is a division of Ser. No. 630,035, April 11, 1967, Pat. No. 3,456,628. This application May 1, 1972, Ser. No. 249,275
Claims priority, application France, Apr. 13, 1966, 66.57392; Dec. 2, 1966, 66.85951; Dec. 9, 1966, 66.86830
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **6 Claims**

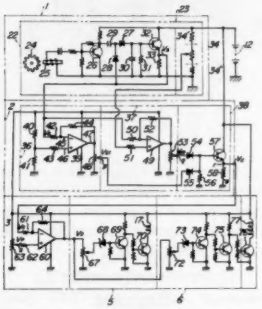


Construction of high speed injectors, a special type switch mechanism for synchronizing the operation of the injectors to the angular position of a motor shaft, a unijunction transistor time delay circuit whose base and emitter voltages are varied in response to variations in different parameters, rapid switching bistable control circuits, which control the injection period in one state, damping circuits for the injector, circuits for transferring the electromagnetic energy liberated by current interruption in one injector coil to the next injector coil to be activated, and circuits for regulating a motor driving a generator to correspond to the voltage, current or power output of the latter.

3,822,679
FUEL CONTROL SYSTEM FOR FUEL INJECTION TYPE INTERNAL COMBUSTION ENGINE

Nobuhito Hobo, Inuyama, and Yutaka Suzuki, Nishio, both of Japan, assignors to Nippondenso Co. Ltd., Aichi-ken, Japan

Filed Aug. 29, 1972, Ser. No. 284,474
Claims priority, application Japan, Sept. 8, 1971, 46-69417
Int. Cl. F02m *51/00*
U.S. Cl. 123—32 EA **2 Claims**

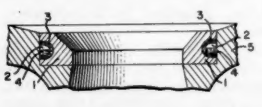


A fuel control system for fuel injection type internal combustion engines is provided. The fuel control system comprises an actuator chamber including a movable wall connected to the fuel injection characteristic controlling element of a fuel injection pump for a fuel injection type internal combustion engine, a forward controlling electromagnetic valve disposed in a passage interconnecting said actuator chamber and a source of high pressure fluid, a reverse controlling electromagnetic valve disposed in a passage connecting said actuator chamber to a low pressure exhaust, an operating condition detector for detecting an operating condition of the engine in the form of electrical operating condition signals, a control voltage generator for receiving said operating condition signals to produce a control voltage corresponding to a predetermined fuel injection characteristic of the engine, a position voltage generator for generating a position voltage corresponding to the position of said controlling element, a comparator for comparing said control voltage with said position voltage to produce an output voltage corresponding to the difference therebetween, and a forward controlling electromagnetic valve driving circuit and a reverse controlling electromagnetic valve driving circuit selectively responsive to the output voltage of said comparator to generate an electrical output for driving said forward controlling electromagnetic valve and said reverse controlling electromagnetic valve selectively.

3,822,680
ISOTHERMAL VALVE SEAT FOR INTERNAL COMBUSTION ENGINE

Merle Robert Showalter, 4733 Shoremead Rd., Richmond, Va. 23234, and Samuel Rhine, 134-26 229th St., Queens, N.Y. 11143

Filed Jan. 11, 1973, Ser. No. 322,762
Int. Cl. F01l *3/14*; **F02f** *3/18*
U.S. Cl. 123—41.16 **8 Claims**

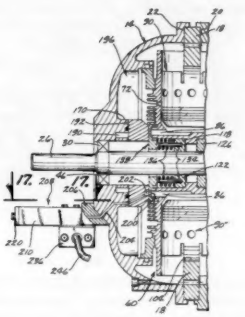


A valve seat for internal combustion engines including a heat pipe passage around the seat to assure that the valve seat is uniformly the same temperature all around even if the cooling of the valve seat from the engine head is not even all around. The heat pipe passage is a gas tight passage including wicked surfaces to assure that the valve seat is uniformly wet and containing a working fluid which is a liquid with a high vapor pressure under the operating temperature range of the valve seat. When the valve seat is heated, fluid evaporates from hot portions, absorbing the heat of vaporization, and the vapor flows hydrodynamically to of vaporization, cooler portions of the heat pipe surface, where the vapor recondenses at the same temperature, giving up its heat ofvaporization. The gas contained in the heat pipe volume is totally or predominantly the working fluid vapor, so that the heat pipe always responds to maintain its entire surface area at an even temperature (this temperature will vary from time to time, but at any given time the entire surface of the heat pipe passage will be isothermal). Uniform valve seat temperatures produce uniform expansion so valve seats stay in round, leak less unburned hydrocarbon, and last longer.

3,822,681
ROTARY INTERNAL COMBUSTION ENGINE

Ray T. Townsend, Des Moines, Iowa, assignor to Townsend Engineering Company, Des Moines, Iowa

Continuation-in-part of Ser. No. 286,189, Sept. 5, 1972. This application Oct. 26, 1972, Ser. No. 301,097
Int. Cl. F02b *57/00*
U.S. Cl. 123—44 E **9 Claims**



A rotary internal combustion engine is disclosed herein and generally comprises a rotor means having a plurality of cylinders spaced radially around a pivoting core. A free floating piston is slidably mounted in each of the cylinders with the head of the piston being positioned towards the center or core of the rotor. A roller is mounted in the skirt end of the piston which rides against a circular cam. The centrifugal force created by the rotation of the rotor causes the pistons to follow the internal cam surface of the cam during rotation. The core of the rotor is provided with parts communicating to each cylinder respectively. A stationary valve plate is mounted against one face of the core so as to communicate fuel and air to the cylinders at the proper time during rotation of the rotor. An air pump is provided to supply air for purging and charging the cylinders and a fuel pump is provided to supply fuel under pressure to a metering valve in the valve plate. Ignition is accomplished through compression with the cam being shaped so that the compression is increased suddenly through the range of combustion. The shape of the cam is such that it is possible to inject the fuel as well as the air, at the expanded position of the piston. The piston is then suddenly compressed through the firing range. Preferably, the cam is shaped to provide a slight dwell at the area of maximum compression to provide ample time for the explosion of the fuel and air mixture. The cylinders are exhausted by means of openings extending around a portion of the cylinder which are in communication

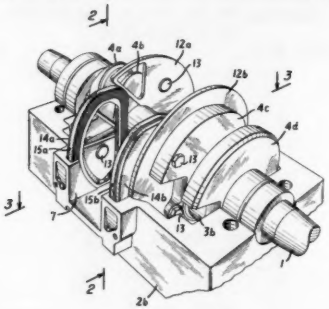
with the exhaust manifold at the extreme expanded position of the pistons. The exhaust from each cylinder is exhausted through its individual exhaust openings rather than through a common exhaust port. The design of the valve plate and seal plate of the engine is unique and insures that the air and fuel will be properly injected at the proper time without creating objectionable pressures on the valve plate and seal plate thereby eliminating leakage and reducing damage to the components. The preferred embodiment includes an even number of cylinders, ordinarily two or four, with a cam plate having a pair of oppositely disposed lobes. The preferred cam plate includes upsweep portions on either side of the lobes to achieve more rapid compression and more rapid exhaust. Pressure sensing or heat sensing means are provided for at least one of the cylinders so that the timing of ignition of the fuel in the cylinder can be carefully controlled under varying atmospheric conditions.

3,822,682

ROTARY VALVE ENGINE

Noble Sherwood, Greenwich, Conn., assignor to Textron, Inc., Providence, R.I.

Filed June 30, 1972, Ser. No. 268,139
Int. Cl. F01l *7/12, 7/16*
U.S. Cl. 123—73 D **11 Claims**



The crank case of a twin cylinder engine is divided into two compartments, one for each cylinder. An intake chamber provided in the crank case between the two compartments has a port opening into each of the compartments. A valve disc on the crank shaft in each of the compartments overlies the port opening into the respective compartment and has an opening registrable with the port when the crank shaft is in a selected angular position to permit entry of a charge from the intake chamber into the respective compartment of the crank case. The charge may be a fuel-air mixture or, in the case of fuel injection into the crank case or the cylinder, it may be air. In either event oil may be included in the charge for lubrication. A seal is provided between the port of the intake chamber and the valve disc by a floating sealing ring of low friction material having a flat face which is pressed against the valve disc by a pressure ring of elastomeric material which may, for example, be of sponge structure or may be formed with a base portion and a selected number of flexible webs which press against the sealing ring and forming passageways for entry of crank case gas under pressure between the base portion of the elastomeric ring and the sealing ring to partially balance pressure tending to unseat the sealing ring.

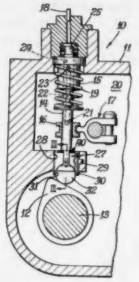
3,822,683

ROLLER BEARING RETAINING CLIP

Jerry A. Clouse, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 11, 1972, Ser. No. 313,697
Int. Cl. F01l *1/10*
U.S. Cl. 123—90.5 **15 Claims**

A plunger assembly employed in a fuel injection pump terminates at its lower end at a roller bearing which engages a cam lobe of an engine driven cam shaft. A spring clip has a



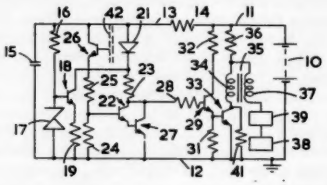
ring portion and a pair of leg portions extending downwardly therefrom to engage opposite ends of the roller bearing to restrain axial displacement thereof.

3,822,684

CONTROL SYSTEMS FOR VEHICLES

Peter Hugh Salway, Birmingham, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Feb. 15, 1972, Ser. No. 226,547
Claims priority, application Great Britain, Feb. 17, 1971, 4880/71
Int. Cl. F04d *11/10*
U.S. Cl. 123—102 **4 Claims**



A control system for a vehicle, which can be used for controlling an ignition system, a petrol injection system or an engine overspeed control, has an electrically powered radiation source and a radiation receiver which is exposed to the source from time to time through the intermediary of means driven by the engine. When the receiver is exposed to the source, the current flowing through the source is increased rapidly by regenerative action, and moreover there is a constant current flowing through the source which is just sufficient to cause it to radiate.

3,822,685

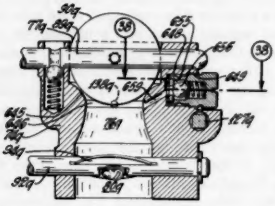
CHARGE FORMING METHOD AND APPARATUS WITH OVERSPEED GOVERNOR

Warren D. Nutten, Grafton, Wis., and Bernard C. Phillips, Toledo, Ohio, assignors to Borg-Warner Corporation, Chicago, Ill.

Division of Ser. No. 74,812, Sept. 23, 1970, which is a division of Ser. No. 766,580, Oct. 10, 1968, abandoned. This application Nov. 1, 1972, Ser. No. 302,902
Int. Cl. F02d *13/00;* **F02m** *13/06;* **G05d** *13/04*
U.S. Cl. 123—114 R **8 Claims**

The invention disclosed embraces a charge forming method of and apparatus embodying an instrumentality responsive to

engine vibrations or disturbances brought into operation when the engine reaches a predetermined speed to automatically deliver excess fuel to the engine thereby momentarily providing a nonignitible mixture preventing overspeeding of the engine.



3,822,686

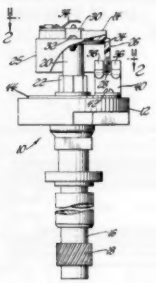
AUTO IGNITION SYSTEM

Michael R. Gallo, 3733 Quarton Rd., Bloomfield Township, Mich. 49228

Filed July 24, 1972, Ser. No. 274,357

Int. Cl. F02p *1/00*

U.S. Cl. 123—148 E **2 Claims**



Automotive distributor apparatus for replacing the standard mechanical breaker points and including a molded plastic rotor cap adapted to fit onto a rotor cap plate in the same manner as a standard rotor cap and having a skirt portion with molded-in, circumferentially arranged metallic teeth. A coil pair is placed on the stator support plate in a preformed locator hole. The coils of the pair are radially spaced so that the rotor cap skirt extends into the air gap therebetween. An output circuit for receiving the timing pulses generated by rotation of the cap between the coils is also disclosed.

3,822,687

FUEL FEED DEVICE FOR GAS-OPERATED INTERNAL COMBUSTION ENGINES

Jean Perez, Levallois-Perret, France, assignor to Automobiles Peugeot, Paris and Regie Nationale Des Usines Renault, Billancourt, both of, France

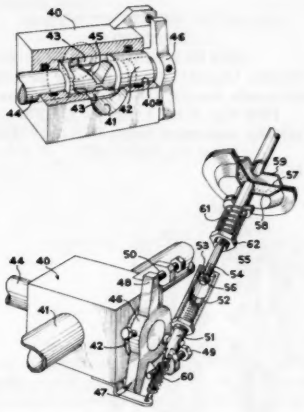
Filed Feb. 20, 1973, Ser. No. 333,569

Claims priority, application France, Feb. 29, 1972, 72.6798

Int. Cl. F02d *33/00*

U.S. Cl. 123—198 DB **5 Claims**

The device comprises an induction pipe for the engine, first means for regulating the flow of gaseous fuel and controlled by a parameter representing the magnitude of the flow of air in the induction pipe and second means for regulating the flow of gaseous fuel connected in series with the first means. The second means is controlled in accordance with the magnitude of the depression prevailing in the induction pipe.



3,822,688

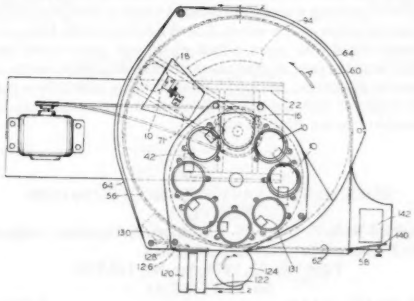
HOCKEY PUCK SHOOTING MACHINE

David L. Mayne, R. D. 1, Yale Farm Rd., Clay, N.Y. 14541

Continuation of Ser. No. 64,652, Aug. 17, 1970, abandoned, which is a continuation of Ser. No. 667,421, Sept. 13, 1967, abandoned. This application Dec. 19, 1972, Ser. No. 316,526

Int. Cl. F41b *3/04*

U.S. Cl. 124—6 **8 Claims**



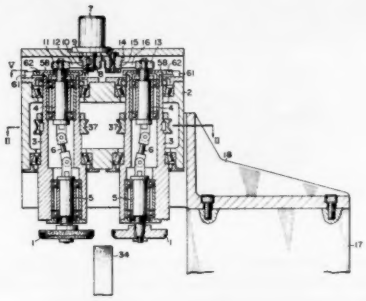
Apparatus for automatically ejecting a succession of hockey pucks in timed sequence and at considerable velocity as an aid in training players in blocking the pucks. The apparatus includes a stationary magazine for holding a plurality of vertical stacks of pucks and rotatable feeding device for supplying the pucks one at a time to an ejector member by which they are propelled by centrifugal force. The ejector member rotates within a cylindrical side wall having a tangential opening through which the puck is ejected. To insure against malfunction by reason of a puck becoming lodged between the end of the ejector member and an edge of the opening, a mechanism is provided to retain the puck at an intermediate position on the ejector member for release at a point in the rotation thereof where the puck will impact against the side wall before

reaching the opening. The puck feeding device is positioned between the bottom of the magazine and the ejector member for feeding the pucks to an opening through which they drop to the ejector member.

3,822,689
SIDE DRESSING DEVICE

Susumu Oshima, Okazaki, Japan, assignor to Toyoda Koki Kabushiki Kaisha, Kariya, Aichi Perfecture, Japan

Filed Mar. 5, 1973, Ser. No. 338,270
Claims priority, application Japan, Mar. 8, 1972, 47-28270
Int. Cl. B24b *53/02*
U.S. Cl. 125—11 CD **4 Claims**

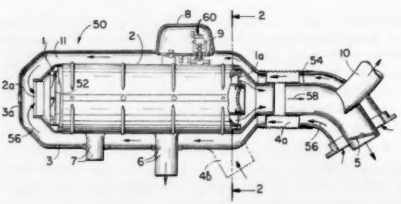


A side-dressing device for grinding wheels comprising a carriage which makes a reciprocating slide motion relative to the body of the dressing device; a pair of main shafts attached to said carriage and rotatable relative to said carriage; shafts rotatable within said main shafts, set eccentrically to the axis of said main shafts and fitted with a rotary diamond truing cutter at their respective outer ends; and a drive mechanism for rotating said rotatable shafts in opposite directions to each other; said pair of rotary diamond truing cutters being so arranged that they may reciprocate and slide on each side surface of a grinding wheel to be dressed which is being rotated at a fixed position on the wheel slide. Said main shafts being externally fitted with gears, which mesh with gears which are linked with the feed shaft to cause the former gears to rotate in opposite directions; and said feed shaft being turned by a certain angle so that the rotary diamond truing cutter may be brought up to the grinding wheel.

3,822,690
SPACE HEATER PARTICULARLY FOR MOTOR VEHICLES

Siegfried Kofink, 7301 a. N., Lenzbalde 8, Germany, assignor to J. Eberspacher, Esslingen, Germany

Filed May 13, 1971, Ser. No. 142,970
Int. Cl. F24h *3/02*
U.S. Cl. 126—110 B **1 Claim**

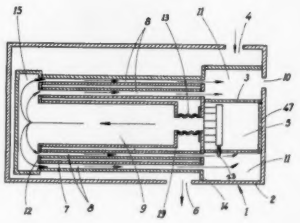


A space heater particularly for motor vehicles comprises an inner tubular enclosure for a heat source, a first jacket defining a first annular space surrounding the tubular enclosure and traversed by heating air, a second jacket surrounding the first jacket and defining a second annular space, the second jacket having an open end and an axially opposite closed end spaced axially from the adjacent end of the first jacket and first annular space, a fresh air inlet communicating with the open end of the second annular space, and a heating air outlet communicating with that end of the first annular space adjacent the open end of the second annular space. The fresh air inlet and the heating air outlet preferably are concentric with each other and are arranged at one and the same end of the space heater or heating device. Fresh air enters through the inlet connection, flows through the second annular space to the closed end of the second jacket, then flows in the counter direction through the first annular space, and is discharged through the outlet connection. The tubular enclosure for a heat source may be a combustion chamber to which combustion air is admitted and exhausted by lateral connections extending across the heating air passage. The heater controls may be mounted in a hood secured adjacent a lateral opening in the second jacket.

3,822,691
GAS-FIRED FURNACE

Paul A. Mutchler, University City, Mo., assignor to American Air Filter Company, Inc., Louisville, Ky.

Division of Ser. No. 201,879, Nov. 24, 1971, Pat. No. 3,724,995. This application Nov. 8, 1972, Ser. No. 304,768
Int. Cl. F24h *3/08*
U.S. Cl. 126—110 R **9 Claims**



A gas-fired furnace including a heat exchanger mounted in a housing in heat transfer relation with flowing air passing over the heat transfer surface of the heat exchanger and a gas burner assembly; the heat exchanger having a centrally disposed burner tube communicating with a rear tube sheet at one end and the gas burner assembly at the opposite end, and a plurality of return tubes disposed about the burner tube and affixed to the rear tube sheet at one end and a flue gas collector at the opposite end.

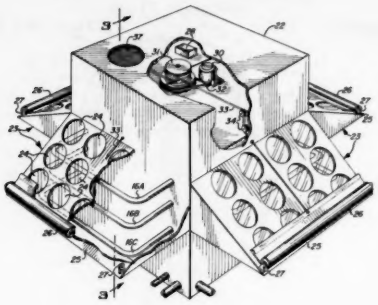
3,822,692
CONTROLLED SOLAR ENERGIZED POWER GENERATOR

James A. Demarest, 3467 E. Voltaire, Phoenix, Ariz. 85023

Filed May 25, 1973, Ser. No. 364,041
Int. Cl. F24j *3/02*
U.S. Cl. 126—271 **8 Claims**

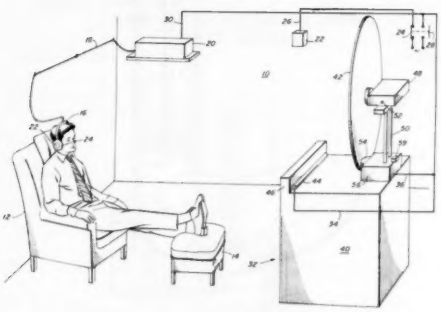
A power generating system includes a closed fluid-flow circuit having tubes extending adjacent a plurality of lens which

direct the solar energy to the tubes. A thermostatic or pressure sensing unit operates a shade device or a separate heating unit



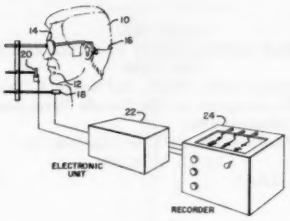
to control the temperature and the pressure of the liquid in the system to provide a constant source of pressurized gas for the power generator.

3,822,693
METHOD FOR INDUCING HYPNOSIS
Paul C. King, 49 Emmeline Ave., Waltham, Mass. 02154
Filed Dec. 22, 1972, Ser. No. 317,601
Int. Cl. A61h *23/00*
U.S. Cl. 128—1 C **1 Claim**



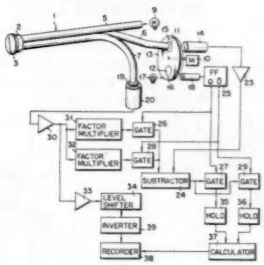
A hypnotic state is induced in humans by placing a subject in a darkened chamber, applying stereo head phones to the subject, playing a pre-recorded hypnotic-inducing message through the ear phones and rotating at a selected speed a disc bearing an Archimedes spiral having alternate segments of black portions and fluorescent portions illuminated by a source of ultra-violet light. The apparatus employed for inducing the hypnotic state includes a special dark room, stereo head phones adapted to block out extraneous noises, a stereo tape player connected to the head phones and adapted to play pre-recorded messages thereon, and a variable speed disc bearing an Archimedes spiral illuminated by ultra-violet light. The spiral is formed with fluorescing and non-fluorescing portions to provide a focal point of attraction when rotated. Chamber illumination, the tape player and the operation of the disc are controllable by a single switch.

3,822,694
METHOD OF MONITORING MANDIBULAR POSITIONS AND MOVEMENTS
Gordon E. Mills, Lynnwood, Wash., assignor to Bernard Jankelson, Seattle, Wash.
Filed Oct. 24, 1972, Ser. No. 300,421
Int. Cl. A61b *5/10*
U.S. Cl. 128—2 S **9 Claims**



A method of monitoring mandibular movements whereby a permanent magnet is secured to the mandible and one or more fluxgate magnetometers are located relative to the permanent magnet so as to sense changes in magnetic field which result from mandibular movement. The outputs of the fluxgate magnetometers are linearized, if necessary, and then recorded to provide an indication of mandibular movement in one or more planes. The output from the magnetometers may be differentiated by associated electronics to provide an indication of velocity and/or acceleration of the mandible during closure.

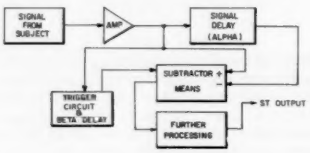
3,822,695
CATHETER SYSTEM
Syuichi Takayama, Tokyo, Japan, assignor to Olympus Optical Co. Ltd., Tokyo, Japan
Filed Dec. 27, 1972, Ser. No. 318,994
Claims priority, application Japan, Dec. 29, 1971, 46-1442
Int. Cl. A61b *5/02*; **G01n** *33/16*
U.S. Cl. 128—2 L **6 Claims**



A catheter system in which an optical fiber bundle has one end divided into first, second and third sections and the other end so shaped as to be covered with an elastic film which is elastically deflectable under an external force and permit insertion into the blood vessel. When light including light signals of 8,050 Å, 6,600 Å and 5,300 Å is transmitted from said first section to said other end, the light signals of 8,050 Å and 6,600 Å are reflected from the blood to said second section through said elastic film and the light signal of 5,300 Å is reflected from said elastic film to said third section. A first detector associated with said second section alternately detects the light signals of 8,050 Å and 6,600 Å and produces first and second corresponding electrical signals as a serial output

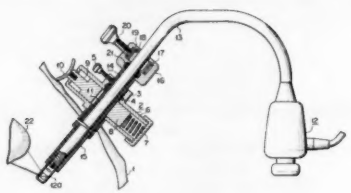
which is corrected by an electrical signal corresponding to the light signal of 5,300 Å and generated from a second detector to provide an electrical signal required for obtaining information on the percentage content of oxygen contained in the blood. Since the elastic film may elastically deflect with variation in the blood pressure to vary the amount of the light of 5,300 Å reflected from the elastic film, information on the blood pressure may be obtained from the second detector.

3,822,696
ELECTROCARDIOGRAPHY ST ANALYZER AND METHOD
Philip A. Ekstrom, Seattle, Wash., and Ronald R. Taylor, Torrance, Calif., assignors to The Battelle Development Corporation, Columbus, Ohio
Filed Sept. 29, 1971, Ser. No. 184,716
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 A **6 Claims**



In electrocardiology: a method and apparatus for measuring st depression, i.e., st level relative to pg level. The st depression is obtained for each wave by storing the wave in a signal time delay apparatus and measuring the level of the st segment of the wave relative to the pq segment of the delayed copy of the wave.

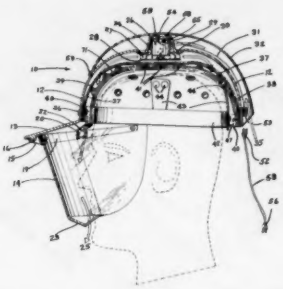
3,822,697
ENVELOPE OF AN ENDOSCOPE
Osamu Komiya, Tokyo, Japan, assignor to Olympus Optical Co. Ltd., Tokyo, Japan
Filed Mar. 20, 1973, Ser. No. 342,973
Int. Cl. A61b *1/00*
U.S. Cl. 128—3 **3 Claims**



An envelope fitted to an endoscope provided with a flexible connection tube used in observing the stomach and liver, thereby enabling said flexible connection tube to have the same function as a rigid connection tube used in observing the abdominal and breast cavities.

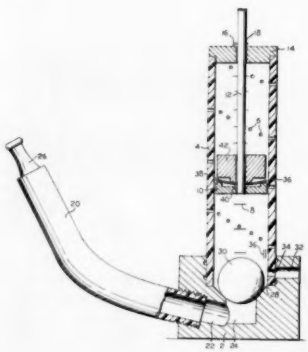
3,822,698
POWERED AIR-PURIFYING RESPIRATOR HELMET
Richard E. Guy, 450 S. Burnett Dr., Baytown, Tex. 77520
Filed Jan. 22, 1973, Ser. No. 310,724
Int. Cl. A61f *9/06*
U.S. Cl. 128—142.7 **11 Claims**

A helmet or hat equipped with a built-in powered air blower and air filtering system which removes contaminants from the surrounding air and continuously delivers the purified air under positive pressure to an area between the wearers face and a fitted transparent face shield supported from the visor,



and from this area the wearer breathes normally while the excess filtered air and exhaled breath escapes through a slightly restricted opening between the bottom of the mask and the wearer's chin.

3,822,699
INSTRUMENT FOR MEASURING MAXIMUM EXPIRATORY FLOW RATE
James M. Cleary, P.O. Box 541, Falmouth, Mass. 02541
Continuation-in-part of Ser. No. 186,663, Oct. 5, 1971, Pat. No. 3,720,202. This application Feb. 28, 1973, Ser. No. 336,406
Int. Cl. A61b *5/08;* **A61m** *16/00*
U.S. Cl. 128—2.08 **15 Claims**



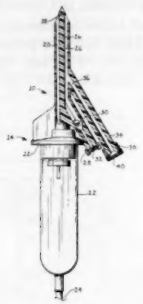
An instrument for measuring maximum expiratory flow rate having a vertically-disposed cylinder with a plurality of equal sized orifices distributed along its length, a floating piston disposed in the cylinder having a guide rod passing through a closure on the top of the cylinder, a self-actuating brake means mounted on the guide rod above the piston and actuatable against the side of the cylinder, a holdback clip mounted on the cylinder closure and operatively engaging the guide rod to prevent the guide rod from moving downwardly once the piston has moved upwardly in the cylinder and a suitable, flexible air tube having a mouthpiece at one end and connected in open communication with the bottom of the cylinder at its other end. The instrument can also be provided with a check valve at the lower end of the cylinder to prevent backflow of air through the air tube and adjustable port means adjacent the base of the cylinder to adjust the range of the instrument.

3,822,700

INTRAVENOUS SOLUTION DISPENSER

Marion G. Pennington, 53-310 30th St., Lubbock, Tex. 79407

Filed Mar. 16, 1973, Ser. No. 342,176
Int. Cl. A61m 5/16
U.S. Cl. 128—214 C 8 Claims



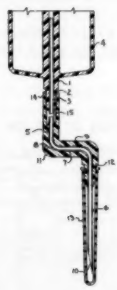
An unrestricted passage is provided through a piercing device; therefore, when the device pierces a stopper of a bottle containing intravenous solution, additives may be injected into the bottle or a portion of the liquid in the bottle may be withdrawn through the unrestricted passage. The unrestricted passage may be opened by removing the cap or by piercing a diaphragm with a needle.

3,822,701

ADAPTOR FOR HYPODERMIC SYRINGE

Harold S. Cloyd, Erie, Pa., assignor to Nosco Plastics Incorporated, Erie, Pa.

Filed Sept. 6, 1972, Ser. No. 286,682
Int. Cl. A61m 5/32
U.S. Cl. 128—221 4 Claims



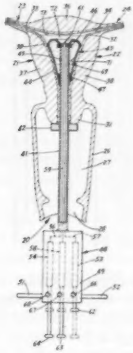
An adaptor for a hypodermic syringe with a central outlet comprising a hypodermic needle having an inlet section at one end, an outlet section at the other end laterally offset from the inlet section and terminating in an insertion point and an intermediate section transverse to and connecting the inlet and outlet sections and a plastic body embedding the inlet, intermediate, and outlet sections with the insertion point exposed at one end of the body and with an integral fitting at the other end of the body surrounding the inlet end of the needle for mounting the needle on said discharge outlet and for connecting said discharge outlet to the needle.

3,822,702

DISPENSING METHOD AND APPARATUS

Lee R. Bolduc, Eugene A. Dickhudt, both of Minneapolis, Minn., assignor to Population Research Incorporated, Minneapolis, Minn.

Filed June 25, 1973, Ser. No. 372,971
Int. Cl. A61m 1/00
U.S. Cl. 128—235 13 Claims



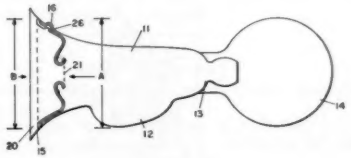
A fluid dispensing instrument and method for introducing a fluid, as drug materials, into the canals of the Fallopian tubes of a primate female. The dispensing instrument has a tubular probe carrying an expandable balloon assembly. A stop collar on the probe positions the balloon assembly in the uterine cavity. The balloon assembly has a sleeve member which is initially expanded to close the lower portion of the uterine cavity. The drug material is introduced through the probe into the upper portion of the uterine cavity above the expanded balloon assembly. The balloon assembly is then further expanded to force the drug material from the upper portion of the uterine cavity into the canals of the Fallopian tubes. The expanding balloon assembly divides the material and forces the drug material into both of the canals.

3,822,703

BREAST PUMP

Patricia B. Davisson, 15 Summit Rd., Wellesley, Mass. 02181

Filed Feb. 13, 1973, Ser. No. 332,062
Int. Cl. A61m 1/06
U.S. Cl. 128—281 7 Claims

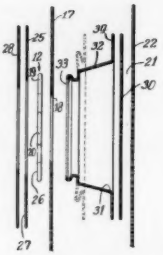


A breast pump is disclosed for use in stimulating lactation, particularly of the female human breast. The pump is equipped with a hollow chamber having a breast receiving opening adapted to engage at least the nipple area and means for pressurizing and depressurizing said chamber when in engagement with the breast. The chamber's breast receiving opening is fitted with a diaphragm having an aperture large enough for only the nipple area to extend through, said diaphram being comprised of elastic material capable of vibrating back and forth in response to the pressurization and depressurization of the chamber when said diaphragm is in engagement with the breast.

3,822,704
UROSTOMY DEVICE

John L. Nolan, Glenview, Ill., assignor to Hollister Incorporated, Chicago, Ill.

Filed Nov. 20, 1972, Ser. No. 308,146
Int. Cl. A61f 5/44
U.S. Cl. 128—283 2 Claims



A valve device particularly useful in combination with a urostomy bag for collecting and holding urine discharged by a patient. The term "urostomy" as used herein refers to various urinary diversion surgical procedures, such as ureterostomy and ileal bladder operations in which an artificial opening is created for discharge of urine from a patient who is not able to pass urine in the normal manner. In its preferred form, the valve device comprises a tube-like frustoconical section having one end sealingly surrounding the inlet for the liquid and the other end closed by a cover secured to the end at spaced points. The material of the cover and of the tube-like section is flexible so that liquid may pass between the spaced points of connection of the cover to the tube-like section, with the flexibility of the material operating as a flap valve to prevent backflow of liquid. It is contemplated that the cover be secured to the tube-like section at spaced points around the 360° circumference of the cover so as to present an outlet regardless of the posture of the patient.

3,822,705
REFRIGERANT WRAP FOR AN ANIMAL'S LIMB

Roland Pilotte, 6387 38th Ave., Rosemont, Quebec, Canada

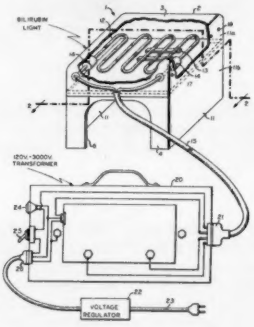
Filed Feb. 6, 1973, Ser. No. 330,030
Int. Cl. A61n 5/00
U.S. Cl. 128—379 9 Claims

A device adapted to wrap around an animal's limb such as one leg of a horse and containing a refrigerant to allay fever, relieve pain and reduce inflammation into that limb or leg. The refrigerant wrap includes a plurality of refrigerant cells held side by side into a series of adjoining pockets interspaced by fold lines for simple manufacturing and to evenly wrap around the limb or leg for relatively uniform cooling treatment around the latter. The refrigerant wrap includes attachment bands of the Velcro type particularly suited for non-annoying and adjustable attachment of the wrap, such as for instance around the leg of a horse. The refrigerant wrap preferably also includes a wire mesh to be at least partially shapable according to the concerned limb to evenly surround the latter and more securely hold into place.

3,822,706
MEDICAL LIGHT AND COMBATING OF HYPERBILIRUBINEMIA

Pasquale Simone, and Julius S. Schneider, both of Whitestone, N.Y., assignors to Medi-Spec Corporation, Whitestone, N.Y.

Filed Aug. 17, 1972, Ser. No. 281,360
Int. Cl. A61n 5/00
U.S. Cl. 128—396 29 Claims

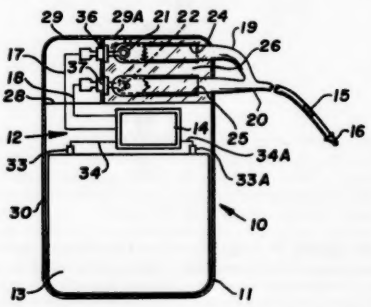


A medical light especially useful in combating hyperbilirubinemia of neonates. The light comprises a neon bulb mounted in a housing of size and construction such that the light can be placed in an incubator.

3,822,707
METAL-ENCLOSED CARDIAC PACER WITH SOLID-STATE POWER SOURCE

Anthony J. Adducci, Bear Lake, and Arthur W. Schwalm, Marshall, both of Minn., assignors to Cardiac Pacemakers, Inc., St. Paul, Minn.

Filed Apr. 17, 1972, Ser. No. 244,755
Int. Cl. A61n 1/36
U.S. Cl. 128—419 P 3 Claims



An improved heart pacer including the conventional combination of a pulse generator, electrode means, and electrode leads coupling the pulse generator to the electrodes, wherein the battery power source of the pulse generator is a solid-state battery with a lithium anode and a lithium-iodide electrolyte.

The pacer structure is enclosed in a hermetically sealed metallic enclosure, with means being provided in the enclosure for passing electrode leads in sealed relationship therethrough. The outer surface of the casing is polished metal, and is continuous in all areas. In certain instances, the continuity may be with the exception of the zone through which the external electrode leads pass.

3,822,708

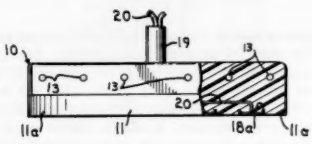
ELECTRICAL SPINAL CORD STIMULATING DEVICE AND METHOD FOR MANAGEMENT OF PAIN

Serge Zilber, Kansas City, Mo., assignor to Clinical Technology Corporation, Kansas City, Mo.

Filed Dec. 7, 1972, Ser. No. 312,935

Int. Cl. A61m *1/36*

U.S. Cl. 128—419 R **7 Claims**



Intractable pain that is transmitted by the spinal cord and sensed by the human body is suppressed by implanting an electrode carrying device near a nerve bundle in the spinal cord. The device is constructed of an electrical insulating substance inert to the body fluids and tissue and carries electrodes for supplying electric current to the spinal cord thereby suppressing the sensed quantity of pain. These electrodes are in aligned, spaced relationship with the alignment extending transversely of the nerve bundle. A switch may be positioned within the body and used to supply the current to certain of the electrodes in response to the quantity of pain sensed thereby controlling same by varying the area of the spinal cord affected.

3,822,709

SHOE HAVING HEEL WITH REPLACEABLE INSERT MEMBER

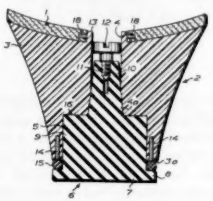
Michael Gruner, Kilian Zollsgatan 15, S-217 56 Malmo, Sweden

Filed Jan. 15, 1973, Ser. No. 323,474

Claims priority, application Italy, Jan. 19, 1972, 84101/72; Sweden, Dec. 5, 1972, 15787/72

Int. Cl. A43b *7/16*

U.S. Cl. 128—614 **8 Claims**



A shoe is provided with a heel comprising a portion consisting of a relatively rigid material permanently attached to the shoe and having mounted therein a replaceable elongated inset member of elastic material projecting beyond the bottom surface of the heel.

3,822,710

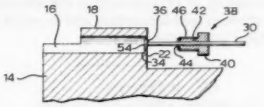
APPARATUS FOR MAKING CIGARETTES

Percy W. Bramhill, 200 Degaspe Apt. 1101, Nun's Island, Montreal, Quebec, Canada

Filed Feb. 23, 1973, Ser. No. 334,983

Int. Cl. A24c *05/42*

U.S. Cl. 131—70 **6 Claims**



A machine for making cigarettes from empty filter tip cigarette tubes and from tobacco cartridges consisting of compressed tobacco contained in a thin sheath of cellulose film or other non-consumable material, the length of the cartridge being slightly greater than that of the cigarette tube. A cartridge is inserted into a cigarette tube, and the combination is slid along a trough and pushed against a stop. The stop, which is carried by a long rod coaxial with the trough, prevents movement of the tobacco while allowing movement of the sheath past the stop. The sheath is then stripped off by a slider which slides back and forth along the rod, thus leaving the tobacco in the cigarette tube.

3,822,711

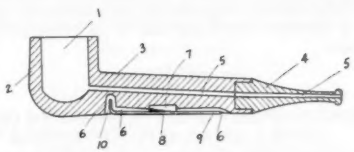
SMOKING PIPE WITH TOOL

Raymond C. Egger, 906 N. Galvin Ave., Marshfield, Wis. 54449

Filed Feb. 21, 1973, Ser. No. 334,305

Int. Cl. A24f *03/02*

U.S. Cl. 131—184 R **1 Claim**



A tobacco pipe having an elongated recess in the lower portion of the stem is combined with a ferro-magnetic tobacco tamper and bowl scraper. A further recess is provided intermediate the elongated recess and a permanent magnet is placed therein so as to hold and retain the tamper and scraper in the elongated recess when not in use.

3,822,712

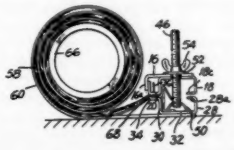
PRE-CURLED WIG

Sture Ostenssen, Miami, Fla., assignor to Fashion Tress, Inc., Hialeah, Fla.

Division of Ser. No. 174,703, Aug. 25, 1971, Pat. No. 3,756,254. This application Apr. 2, 1973, Ser. No. 347,206

Int. Cl. A45d *2/00*

U.S. Cl. 132—31 **2 Claims**



A curling tool is disclosed as including a curling mechanism and apparatus. The apparatus includes a hinged member and

an anchor member, hingedly attached to each other so that the hinged member overlies the anchor member when a wig hair and wefting is inserted to the apparatus. The hinged member clamps the hair and wefting in a horizontal plane with the hinged member overlying the anchor member. Means are also included to prevent lateral movement of the hair and wefting. Clamping means extend from the anchor member through a slot in a hinged member to hold the apparatus in the overlying relationship. A reverse curl is thereby emparted to the wig hair to prevent curl separation and to avoid the necessity for teasing after setting the wig.

3,822,713

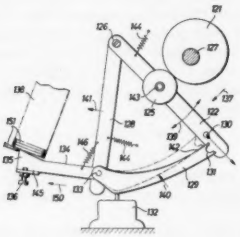
COIN DELIVERY MACHINE

Gerd Rainer Frahm; Ulrich Franz Meisel, and Ulrich Heine, all of Berlin, Germany, assignors to NGZ Geldzahlmaschinenges, mbH & Co. Fertigungs K.G., Berlin, Germany

Filed June 27, 1972, Ser. No. 266,704

Int. Cl. G07d *1/02*

U.S. Cl. 133—2 **6 Claims**



A coin delivery machine has an electronic system operating through a matrix to control the mechanism for dispensing coins from the coin magazine and the controls are operated from a keyboard simulating that of an office calculating machine.

3,822,714

CONDUIT SYSTEM FOR THE TRANSPORT OF LIQUID AND/OR GASEOUS MEDIA AND METHOD

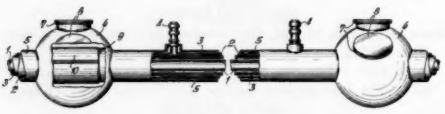
Conrad Doose, Julich, Germany, assignor to Kernforschungsanlage Julich Gesellschaft mit beschrankter, Haftung, Julich, Germany

Filed Mar. 24, 1971, Ser. No. 127,640

Claims priority, application Germany, Mar. 24, 1970, 2013971

Int. Cl. F16l *9/18;* **H01b** *9/06*

U.S. Cl. 137—1 **6 Claims**



In a conduit system for transporting fluids which includes a vacuumized tubular casing containing fluid medium-carrying conduits, there is provided an outer protective tube surrounding the vacuumized tubular casing and defining therewith an annular jacket which contains an inert gas. The inert gas is such that it does not condense during a possible entry into the vacuumized tubular casing, exhibits a pressure which is higher than the pressure of the environment surrounding the protective tube and higher than the pressure of the fluid being transported, and has a boiling point below the operating temperature of the fluid being transported.

3,822,715

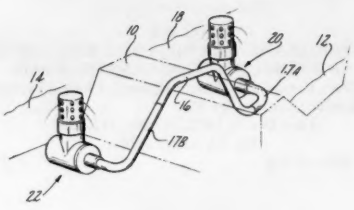
IRRIGATION SIPHON APPARATUS

Eddya Gopalakrishna Rao, Katekar Mangalore S. K., India

Filed Jan. 23, 1973, Ser. No. 326,109

Int. Cl. F16l *43/00*

U.S. Cl. 137—140 **6 Claims**



An irrigation siphon having a pair of float-operated valves on opposite ends of an elongated conduit. The conduit is disposed on a levee to receive water through one of the valves for delivery out the other valve. Each valve has a float arranged such that when the water at the inlet end of the conduit falls below a predetermined level, the outlet valve is closed such that the siphon is continually primed even though it is not passing water.

3,822,716

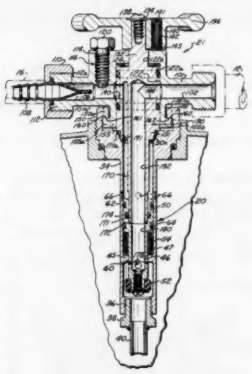
BEVERAGE TAPPING DEVICE

Richard E. Martin, Willoughby; Anthony M. Gildone, Euclid, and Sandor Frankfurt, Shaker Heights, all of Ohio, assignors to GMF Inc., Cleveland, Ohio

Filed June 29, 1972, Ser. No. 267,670

Int. Cl. B65d *83/00*

U.S. Cl. 137—212 **3 Claims**



Apparatus for tapping a container comprising a container valve unit secured to the container. The container valve unit includes a fluid-dispensing passage and a self-closing valve with a fluid-dispensing passage, and which valve has a closed position blocking fluid flow therethrough. A tapping unit cooperates with the container valve unit and effects opening of the self-closing valve of the container valve unit when locked thereto by a bayonet connection. The tapping unit has a passageway for receiving fluid from the container valve unit and an outlet for directing fluid therefrom to the use location. A valve means controls the flow of fluid from the tapping unit outlet and closes prior to disconnection of the tapping unit from the container valve unit.

3,822,717

ANTI-SIPHON DEVICE

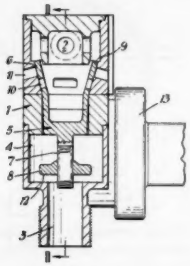
Eric Thorne-Symmons, deceased, 95 Hamlet Gardens, late of London, England, (Freda Irene Thorne-Symmons, administratrix)

Filed Feb. 8, 1972, Ser. No. 224,473

Claims priority, application Great Britain, Feb. 25, 1971, 5427/71; Jan. 5, 1972, 504/72

Int. Cl. F16k 45/00

U.S. Cl. 137—218 9 Claims



An anti-siphon device particularly for use with a ball float valve assembly in a water storage tank, having an inlet and an outlet with a passageway therebetween, a closure member seated in the passageway and being freely movable from a seated position in which it seals a plurality of ports leading from the passageway to atmosphere to an unseated position in which the ports are open when any suction occurs at the inlet to prevent return flow of water through the device.

3,822,718

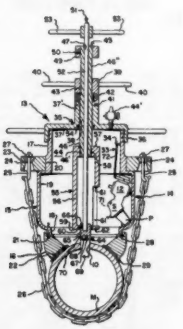
APPARATUS FOR MOVING A PLUG FITTING

Ralph L. Peterson, 27 Woodward Dr., West Seneca, N.Y. 14224

Filed Oct. 2, 1972, Ser. No. 293,763

Int. Cl. B23b 41/08; F16e 41/04

U.S. Cl. 137—317 13 Claims



Apparatus is provided for moving a plug fitting relative to a hole in a conduit. A housing is mounted on a conduit over a fitting to be removed. An aligned drawbar mounted on the housing, is descended and interlocked with the fitting. The fitting is withdrawn from the hole and moved to an out-of-the-way position. A rod holding a second fitting is slidably mounted within the drawbar to descend, insert and release the second fitting when properly inserted in the hole.

3,822,719

APPARATUS FOR REMOVING GASES

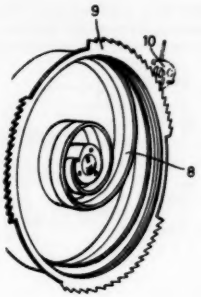
Bill Nederman, Gransgatan 9, S-252 28 Helsingborg, Sweden

Filed Apr. 16, 1973, Ser. No. 351,352

Claims priority, application Sweden, Apr. 18, 1972, 4973/72

Int. Cl. B65h 75/46

U.S. Cl. 137—355.26 3 Claims



An apparatus for removing gas and similar fluids from closed areas comprises a frame in which a drum is rotatably mounted. An outlet socket is set axially into one end of the drum in fixed relation to the frame and a hose is wound on the drum and has one end connected inside the drum to the outlet socket. A spiral spring device is mounted on a shaft fixed axially to the other end of the drum for rotating the drum to wind up the hose. Stop elements are provided on the hose and the frame to stop the winding of the drum and a releasable catch is secured to the frame and cooperates with tooth segments on the spring device to hold the drum in the desired position.

3,822,720

FLOW CONTROL ASSEMBLY

Augustine A. Souza, San Jose, Calif., assignor to Robert N. Noyce, Los Altos, Calif.

Filed Mar. 4, 1971, Ser. No. 120,963

Int. Cl. F16k 15/16

U.S. Cl. 137—525.1 2 Claims

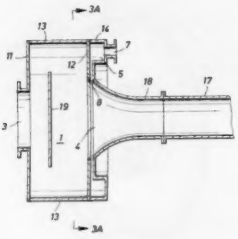
An integral one piece flow control assembly is described having a hollow cylindrical main body defining a passage therethrough and a pair of lip members extending inwardly and longitudinally of said main body to a terminal end for controlling the flow through the passage. The lip members have a peripheral portion connected to the inner surface of the body and a central body portion extending from the peripheral portion to a terminal end portion defining a normally closed slit opening. Each lip member is curved inwardly toward the axis of the main body. Pressure in one direction presses the slit closed, and pressure in the opposite direction opens the slit. A pair of such flow control assemblies oriented in the same direction within a passage provide an inexpensive pump.

3,822,721

OIL/WATER PIPELINE INLET WITH OIL SUPPLY VIA A LARGE CHAMBER

Eke Verschuur, Amsterdam, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Filed Jan. 13, 1972, Ser. No. 217,486
Claims priority, application Netherlands, Apr. 29, 1971, 7105971
Int. Cl. F17d *1/16*
U.S. Cl. 137—604 3 Claims



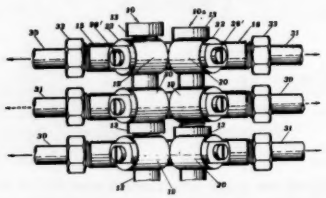
An inlet piece for a pipeline for the transport of a viscous liquid surrounded by an annular layer of a liquid with a lower viscosity, which liquids are entirely or substantially insoluble with respect to each other, composed of a first chamber, provided with at least one inlet and with an exit for the viscous liquid, a second chamber, provided with at least one inlet for the liquid with a lower viscosity and with an annular outlet for that liquid which is so positioned as to surround the exit for the viscous liquid, and a rotation-symmetrical connecting piece for the connection to the pipeline; and a process for the transport of those liquids through a pipeline.

3,822,722

MULTIPLE VALVE ASSEMBLY

Antonio Romanelli, Via Omoded 120, Naples, Italy

Filed June 23, 1972, Ser. No. 265,595
Claims priority, application Italy, June 23, 1971, 89526/71
Int. Cl. F16k *11/10*
U.S. Cl. 137—608 9 Claims



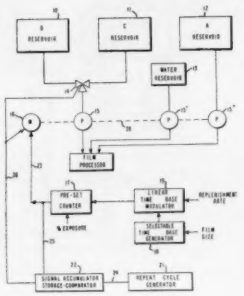
This invention relates to a multiple valve assembly, or manifold wherein a plurality of single, equal members may be easily connected to each other, and particularly pertains to a manifold that, when said single, equal members are assembled, provides not only a main lengthwise flow passage from an upstream pipe to a downstream for fluid flow, but also two opposite coaxial branches in each member, to form corresponding crosswise flow passages for fluid flow in either crosswise direction which may independently be regulated by a suitable valve.

3,822,723

APPARATUS FOR CONTROLLING ADDITION OF REPLENISHMENT SOLUTION TO A PHOTOGRAPHIC PROCESSOR

John A. Crowell, and Alan D. Bull, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 287,664, Sept. 11, 1972, abandoned. This application May 10, 1973, Ser. No. 358,860
Int. Cl. G03d *3/00*
U.S. Cl. 137—624.15 14 Claims



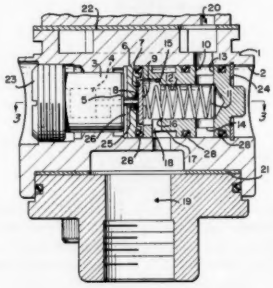
An apparatus for controlling make-up and addition of replenishment solution to a photographic processor, having one or more reservoirs and metering pumps for selecting make-up solution concentrates, and electronic controls for determining the volume of replenishment solution. Replenishment can be accomplished taking into consideration all of the operating variables such as film size, replenishment rate, and percent exposure, as well as the cumulative effect of any additions and aerial oxidation of the solution while not in use.

3,822,724

FAST ACTING DISC VALVE

John M. Clapp, Sayre, and Lewis C. Pritchard, Athens, both of Pa., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Mar. 14, 1973, Ser. No. 341,118
Int. Cl. F16k *31/06*
U.S. Cl. 137—625.5 9 Claims



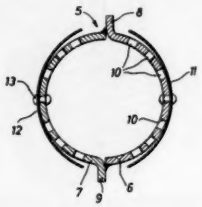
A small fast acting solenoid operated disc valve having a free fluid accelerated disc triggered by a solenoid plunger in response to an over voltage D.C. short duration pulse. The resulting valve is suitable for torque control purposes and the like requiring valve closing times in the order of 5 milliseconds and small size.

3,822,725

PULSATION DAMPING DEVICE FOR USE WITH PRESSURE FLUID OPERATED APPARATUS

Wilhelm Zirps, Hemmingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 24, 1973, Ser. No. 391,288
Claims priority, application Germany, Oct. 4, 1972, 363929[U]
Int. Cl. F16l 55/04
U.S. Cl. 138—28 14 Claims



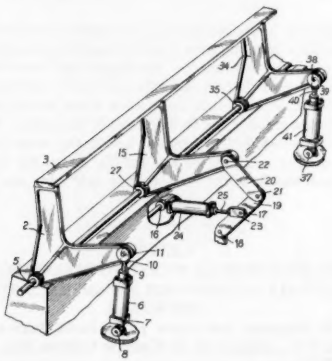
An inner tube is concentrically surrounded by an outer tube with clearance. The inner tube is provided with apertures and in the clearance there is located a flexible tubular diaphragm which subdivides the clearance into an outer chamber containing a body of pressurized fluid, and an inner chamber including the interior of the inner tube, through which pressure fluid for the fluid-operated apparatus can pass. Arcuately curved valve plates of elastically yieldable material are mounted in the inner chamber and are normally out of contact with the exterior side of the inner tube. The diaphragm is flexible so that it can move to a position in which it contacts the outer side, in which case it deflects the valve plate into contact with this outer side so that they overly the apertures in the inner tube.

3,822,726

SLEY DRIVING SYSTEM WITH SINGLE OR DOUBLE CONTACT FOR POWER LOOMS OR HAND LOOMS

Heinz Kuster, Malilla, and Bjorn Brorsson, Vimmerby, both of Sweden, assignors to Aktiebolaget Rosenfors Bruk, Malilla, Sweden

Filed Apr. 13, 1972, Ser. No. 243,709
Int. Cl. D03d 49/60
U.S. Cl. 139—190 4 Claims



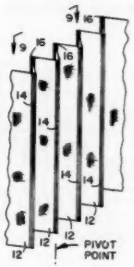
Sley driving apparatus for at least two sley swords in a loom, wherein the advance and retraction of the sley is effected by three separate pneumatic or hydraulic operating means connected in parallel. One of the operating means is directly connected between one of the sley swords and the loom support and is operative only during a first part of the sley movement. A second of the operating means is connected to a toggle joint, one link of which is coupled to the loom support and a second link of which is coupled to the associated sley sword, such that the toggle joint is straightened when the sley sword is in its advanced position. The third operating means is a cylinder coupled directly between a sley sword and the loom support and is connected to an adjustable source of pressure, so that the weight of the sley sword causes energy storage in the cylinder when the sley sword is in its retracted position, the latter cylinder and the first operating means being capable of stopping the sley sword in its forward position.

3,822,727

FABRIC WEAVE

Kathryn Small, 1850 Fullerton, and Thomas Vranko, 970 19th St., both of Costa Mesa, Calif. 92627

Filed Aug. 7, 1972, Ser. No. 278,189
Int. Cl. D03d 13/00
U.S. Cl. 139—383 R 15 Claims



A novel fabric weave providing integrally woven folds or creases. Each fold has a weave characterized by a void, a pivot thread or a group of threads which run the length of the fold and act as the point of creasing in the fold. The pivot thread or group of threads are interlaced as one at intervals along the length of the pivot thread or threads by a plurality of float threads. The float threads float or pass over at least three of the threads lying on each side of the pivot thread or group of threads. Above and below the float threads are one or more holding threads which hold the float threads in place. The tension created by the float threads along either side of the pivot thread or threads causes a natural and inherent tendency of the fabric weave to form a fold or crease which is permanent. The novel weave of the invention is particularly suited for the weaving of draperies.

3,822,728

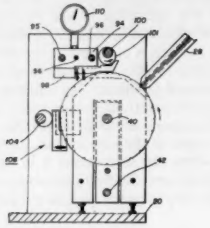
APPARATUS FOR FLATTENING AND TRIMMING THE LEADS OF ELECTRICAL COMPONENTS

Martin G. Heller, 68 Harvey Dr., Short Hills, N.J. 07078; Donald D. Kelly, Roseland, and Richard L. Cheney, Lake Hiawatha, both of N.J., assignors to said Heller, by said Kelly and Cheney

Filed June 22, 1973, Ser. No. 372,639
Int. Cl. B21f 5/00, 11/00
U.S. Cl. 140—1 16 Claims

In apparatus for processing electrical components characterized as having leads extending from both ends of the body member there is provided a transport wheel which receives

the components one at a time and while nested in notches in the wheel carries them to lead flattening and cutting dies

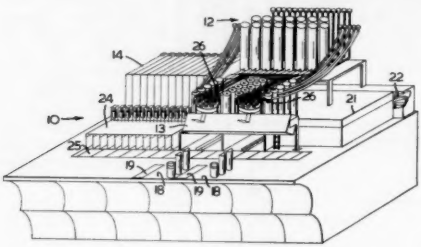


where the leads are flattened to a determined degree and cut. At a later station these flattened leads are trimmed and/or shaped to the precise desired length and/or configuration.

3,822,729
AUTOMATIC BARS

Georges Omer Rochette, 7 Eastwood Pl., Apt. 4, Vanier, Ontario, Canada

Filed Sept. 10, 1971, Ser. No. 179,278
Claims priority, application Canada, Sept. 14, 1970, 93228
Int. Cl. B65b *3/06;* **B67c** *3/24;* **B67d** *5/02*
U.S. Cl. 141—92 **3 Claims**



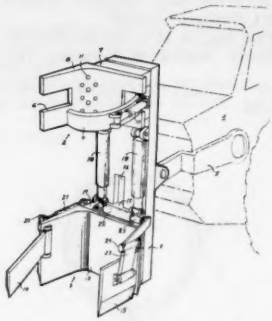
The automatic bar machine is housed in a cabinet having an "empty indicator board", some exit openings to serve the orders on a counter beside an order console. The machine comprises an automatic glass washer, a glass distribution conveyor, some spare trays of glasses, and a glass distributor to provide empty glasses to the exit ejector and mixing stations; the bottled ingredients are carried by the main conveyor from the bottles dispensing station to the order console. A dirty glass conveyor system conveyed the dirty glasses to the automatic glass washer.

3,822,730
APPARATUS FOR FELLING TREES

Gustaf Matteus Hultdin, and Ove Anders Hultdin, both of Mala, Sweden, assignors to Hultdins Verkstads AB, Mala, Sweden

Filed Dec. 3, 1971, Ser. No. 204,659
Claims priority, application Sweden, Dec. 4, 1970, 16482/70
Int. Cl. A01g *23/08*
U.S. Cl. 144—34 R **18 Claims**

The invention relates to an apparatus for machining trees, for example for pruning trees and/or felling trees. In particular, the invention refers to an apparatus for felling trees by separating from the trunk of a tree those roots and any root swelling extending peripherally outward from the trunk so that the same remain substantially in their original position under the ground. For this purpose the apparatus comprises a gripping member to hold the tree, a machining member provided with cutting means for machining the tree, one of said members being movably arranged on a frame through a longitudinal guide means immovably fixed to the frame, the other of said members being fixed to the frame which is in turn connected to a vehicle by means of crane or operating

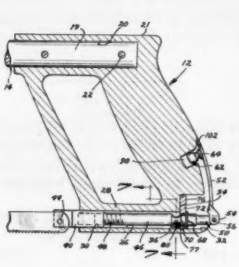


arms, and force transmitting means laterally spaced from the longitudinal guide means for moving said members away from each other along a line of movement guided by the longitudinal guide means.

3,822,731
HACKSAW FRAME

Mark W. Keymer, Hopkins, Minn., assignor to Malco Products, Inc., Annandale, Minn.

Filed July 30, 1973, Ser. No. 384,031
Int. Cl. B27b *21/00*
U.S. Cl. 145—33 A **8 Claims**



A hacksaw frame for a blade, the handle portion of which has a socket extending from front to rear therethrough, a take-up pin rotatably mounted in the socket and restrained from axial movement therein, an external crank for rotating the take-up pin, and a blade connector block axially but non-rotatably mounted in the forward end of the socket. The take-up pin is threaded at its forward end to the blade connector block so that cranking of the handle draws the connector block rearwardly in the socket, thus tightening the hacksaw blade.

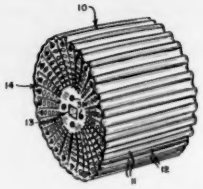
3,822,732
RESILIENT VEHICLE WHEEL WITH CORRUGATED TREAD WALL AND INWARDLY-DISHED CORRUGATED END WALLS

Hugo S. Ferguson, and Frank E. Raymond, both of Averill Park, N.Y., assignors to Air Cushion Vehicles, Inc., Poestenkill, N.Y.

Filed Oct. 16, 1972, Ser. No. 297,735
Int. Cl. B60b *9/10*
U.S. Cl. 152—7 **20 Claims**

A resilient vehicle wheel, particularly for off-the-road vehicles, comprises a generally cylindrical tread wall of resilient

material having circumferentially-spaced corrugations, an inner hub section, and a pair of inwardly-dished end walls of resilient material joining respective ends of the tread wall with the hub section. The end walls have angularly-spaced corrugations joining the corrugations of the tread wall and extending inwardly toward the hub section. Preferably the ridges of the end wall corrugations join the valleys of the tread wall corrugations, and vice versa, and the end wall valleys extend to a



radius equal to, and advantageously greater than, the radius of the innermost portions of the tread wall valleys at respective ends of the wheel. The valleys of the end wall corrugations advantageously have respective series of alternate deeper and shallower portions spaced therealong, e.g., depressions. The resilient end walls and tread wall provide at least a major portion of the support for a load, and desirably the interior of the wheel is at atmospheric pressure.

3,822,733

DEVICE FOR ROTATABLE SUPPORT OF ROLLS COMPRISING A WEB OF CLOTH OR SIMILAR

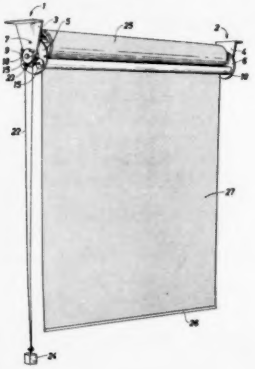
Bjorn T. Lindelow, Korshamnsvagen 8384, 430 41 Kullavik, Sweden

Filed Nov. 3, 1970, Ser. No. 86,434

Claims priority, application Sweden, Nov. 5, 1969, 15136/69

Int. Cl. A47h *1/00;* **47g** *5/02*

U.S. Cl. 160—120 **2 Claims**



A device for the rotatable support of rolls of cloth or the like webs, which webs can be lowered from the device by the rotation of the roll to serve as a back ground screen, for example, in photographic studios and the web raised by rewinding the same to roll form on the device which is supported at an appropriate height when in use.

3,822,734

HOOKING-ON PROFILES FOR THE ATTACHMENT OF WALL COVERING FABRICS

Gerard Tombu, rue des Bouchers, 8, 02 St. Quentin, France

Filed Mar. 5, 1973, Ser. No. 338,276

Claims priority, application Belgium, Mar. 10, 1972, 780464

Int. Cl. A47h *13/01*

U.S. Cl. 160—383 **7 Claims**

Improvements to fixed and mobile elements for the hooking-on of wall cloths, consisting in providing said elements with at least one zone covered with protrusions in order to promote the adherence between the cloth and aforesaid hooking-on elements.

3,822,735

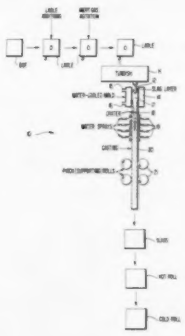
PROCESS FOR CASTING MOLTEN SILICON-ALUMINUM KILLED STEEL CONTINUOUSLY

Robert S. Miltenberger, Weirton, W. Va., and David W. Wilcher, Winterville, Ohio, assignors to National Steel Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 841,134, July 11, 1969, abandoned. This application June 16, 1972, Ser. No. 263,626

Int. Cl. B22d *27/20*

U.S. Cl. 164—56 **20 Claims**



A molten silicon-aluminum killed steel consisting essentially of 0.04–0.30% of carbon, 0.20–1.50% of manganese, 0.02–0.15% of silicon, 0.04–0.10% of aluminum, and the remainder iron and incidental impurities is introduced into a mold for continuously casting steel and is cast therein to produce a solidified steel shape continuously. The molten steel is introduced into the mold through a tundish nozzle hav-

ing a size sufficiently large to prevent plugging by nonmetallic inclusions. The solidified steel shapes may be cast in the form of slabs which may be hot rolled to produce flat rolled products such as steel strip or plate. In one preferred variant, the quality of the solidified steel shapes is improved by preventing oxidation of the aluminum content of the molten killed steel prior to casting, by providing a fluid slag over the molten steel in the mold to aid in separating nonmetallic inclusions therefrom prior to solidification, and/or by agitating the molten killed steel in the ladle with an inert gas to reduce nonmetallic inclusions and assure uniformity of composition and temperature.

3,822,736

METHOD FOR MANUFACTURING COOLING MEMBERS FOR COOLING SYSTEMS OF METALLURGICAL FURNACES

Sergei Mikhailovich Andoniev, prospekt Pravdy, 5, kv. 60, Kharkov; Nikolai Nikitovich Alexandrov, Sharikopodshipnikovskaya, 2, kv. 147, Moscow; Nikolai Ivanovich Klochnev, Sharikopodshipnikovskaya, 2, kv. 190, Moscow; Evgeny Vladimirovich Kovalevich, Frunzenskaya naberezhnaya, 24, kv. 38, Moscow; Gennady Alexandrovich Kudinov, prospekt Pravdy, 5, kv. 202, Kharkov; Dorina Borisovna Kutsykovich, prospekt Lenina, 39, kv. 54, Kharkov; Vasily Ivanovich Kulikov, Novorosiiskaya, 9, korpus 1, kv. 9, Moscow, and Oleg Vladimirovich Filipiev, prospekt Pravady, 5, kv. 41, Kharkov, all of U.S.S.R.

Continuation of Ser. No. 77,023, Sept. 30, 1970, abandoned. This application Aug. 17, 1972, Ser. No. 281,533

Int. Cl. B22d *19/00*

U.S. Cl. 164—100 **2 Claims**

A method of preventing carbonization of metal pipes during the manufacturing of cooling members for metallurgical furnaces, according to which steel pipes for passing cooling liquid are coated externally with a refractory material and inserted into a mold after which molten iron maintained at a temperature range of from 1,180° to 1,250°C is poured into the mold.

3,822,737

APPARATUS FOR PREPARING FOUNDRY MOLDS OR CORES FROM COLD QUICK SETTING SAND/BINDER/CATALYST MIXTURES

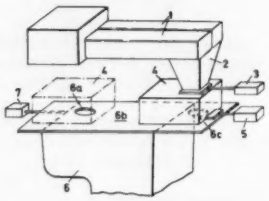
Albert Edwards, Peterborough, England, assignor to Baker Perkins Limited, Petersborough, England

Filed Mar. 24, 1972, Ser. No. 237,699

Claims priority, application Great Britain, Mar. 29, 1971, 8094/71; Dec. 22, 1971, 59541/71

Int. Cl. B22c *15/22*

U.S. Cl. 164—158 **12 Claims**



A method and apparatus for preparing foundry moulds or cores wherein separate charges of sand and binder on the one hand and sand and catalyst on the other hand are supplied to a mixing chamber in which the separate charges are mechanically intermixed to produce a final sand/binder/catalyst mixture. The final mixture is then passed by gravity into a blowing chamber and the mixing chamber and the blowing chamber are moved apart to allow the final mixture to be blown from the blowing chamber into a mould or core box and further to allow the mixing chamber to be cleaned by suitable cleaning means.

3,822,738

APPARATUS FOR GUIDING AN OSCILLATING CONTINUOUS CASTING MOLD AT A CONTINUOUS CASTING INSTALLATION WITH CURVED PATH OF TRAVEL OF THE STRAND

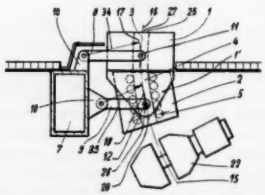
Adam Rotarides, Brentwood, England, and Werner Bruderer, Feldmeilen, Switzerland, assignors to Concast AG, Zurich, Switzerland

Filed Jan. 31, 1973, Ser. No. 328,408

Claims priority, application Switzerland, Feb. 1, 1972, 1466/72

Int. Cl. B22d *11/00*

U.S. Cl. 164—260 **13 Claims**



An apparatus for guiding an oscillating or reciprocating continuous casting mold at a continuous casting installation having a curved axis of the path of travel of the strand, by means of a hinge or linkage mechanism equipped with at least four elements, wherein one element with a respective hinge at the ends thereof is formed by a mold arrangement which may be the mold itself or the mold and an extension thereof and another element serving as a frame is formed by a part of the structure of the installation. The paths of movement of the hinges are curved at the mold opposite to the axis of the path of travel of the strand.

3,822,739

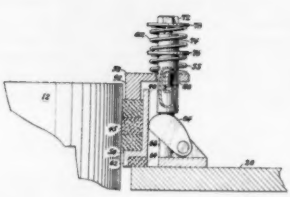
MULTI-DIRECTIONAL SEAL BIASING MEANS

Hermann E. Kurschner, Wellsville, N.Y., assignor to The Air Preheater Company, Inc., Wellsville, N.Y.

Filed Feb. 2, 1973, Ser. No. 329,267

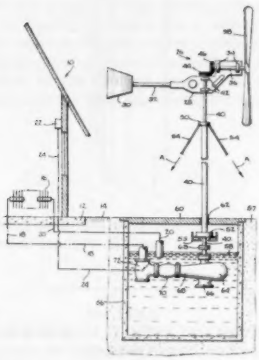
Int. Cl. F28d *19/00*

U.S. Cl. 165—9 **6 Claims**



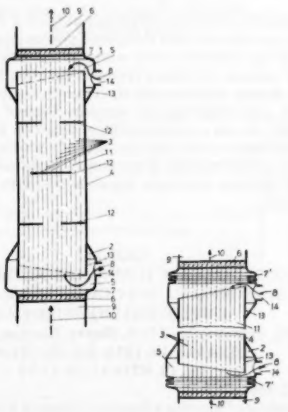
A sealing arrangement for an air preheater that precludes fluid flow between a rotatable shaft and a relatively fixed element of a surrounding housing structure. The sealing arrangement is adapted to be simultaneously biased in an axial direction by a spring biased sleeve and in a radial direction by a spring biased cam to close a clearance space that would permit leakage of fluid therebetween.

3,822,740
HEATING SYSTEM
Robert S. Hackett, 13 Fox Meadow Rd., Scarsdale, N.Y. 10583
Filed Mar. 6, 1972, Ser. No. 231,948
Int. Cl. F28d 15/00
U.S. Cl. 165—45 4 Claims



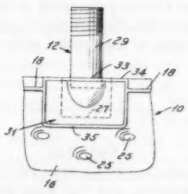
A wind driven heating system in which a windmill wheel is connected to drive a liquid pump which agitates a heat transfer liquid to heat it and to drive the heated liquid through a circuit to a radiator.

3,822,741
TUBULAR HEAT EXCHANGER WITH STRESS-RELIEVING STRUCTURE
Josef Lippitsch, Graz, Austria, assignor to Waagner-Biro Aktiengesellschaft, Vienna, Austria
Filed Mar. 9, 1973, Ser. No. 339,531
Claims priority, application Austria, Mar. 13, 1972, 2075/72
Int. Cl. F28b 7/00
U.S. Cl. 165—83 7 Claims



A tubular heat exchanger which has a structure for relieving stresses which otherwise would occur from temperature fluctuations. A plurality of tubes are connected at their opposite ends to a pair of tube plates which in turn are fixed to opposed enlarged end portions of an elongated vessel which surrounds the tubes and which extends between the tube plates. The enlarged end portions of the vessel are flexible and of a sufficient yieldability to absorb stresses which otherwise would occur due to elongation and contraction of the tubes.

3,822,742
PLATE TYPE HEAT EXCHANGER AND PRODUCTION
Sheldon J. Stowell, Dimondale, Mich., assignor to Tranter Manufacturing, Inc., Lansing, Mich.
Filed Oct. 16, 1972, Ser. No. 297,892
Int. Cl. F28f 3/14
U.S. Cl. 165—170 17 Claims



A pair of like flat rectangular steel sheets are superposed face-to-face and seam-welded together marginally, as well as being further united rigidly between margins by a pattern of elongated seam weld and interrupted seam or spot weld-type unions. The latter are arranged in longitudinally extending rows paralleling horizontal and intermediate seam welds, the interrupted welds of successive rows being in a longitudinally and laterally staggered relationship defining a symmetric pattern of uniformly diamond-shaped areas between sets of four of the interrupted welds. Either before or after the sheets are weld-united in this fashion, they are punched to afford a pair of registering rectangular notches which are optionally located, depending upon the ultimate configuration of the product, at spaces at which a pair of special inlet and outlet pad sub-assemblies for the heat transfer fluid are to be applied. Each of these units consists of a nipple-like cylindrical pipe length about the circumference of which a pair of like stamped sheet metal pad-like plates are welded. Flat portions of these plates are in turn telescoped in parallel relation to and over a portion of the notched margin of the prior-welded heat transfer plate or sheet sub-assembly, spanning the respective notches, and are thereafter welded leaktight to said plates about the margins of the two fitting pad components. The full welded assembly is then clamped rigidly along outer margins in an expansion fixture, whereupon hydraulic pressure is applied to the inlet pad fitting (the other being plugged), thus to controllably inflate interior spaces not held by weldments, thus in turn to produce a multiplicity of identical and symmetrically distributed, staggered diamond-shaped pillow-like subvolumes, as defined by the weld patterning described above; through these spaces a heat transfer fluid medium travels in a well distributed but generally serpentine, parallel flow path from inlet to outlet.

3,822,743
HEAT PIPE WITH PLEATED CENTRAL WICK AND EXCESS FLUID RESERVOIR
Elmer Dale Waters, 412 Delafield St., Richland, Wash. 99352
Division of Ser. No. 182,038, Sept. 20, 1971, Pat. No. 3,720,988. This application Nov. 20, 1972, Ser. No. 307,790
Int. Cl. F28d 15/00
U.S. Cl. 165—105 5 Claims

A heat pipe wick structure including a homogeneous central wick is fabricated by forming a plurality of laterally disposed longitudinal pleats in a sheet of wire screen, and compressing

the formed pleats laterally together and inserting the same longitudinally into the tubular container of a heat pipe. The pleats can be formed in a laterally central portion of the sheet with a flat screen portion on each side thereof, and the side portions are turned back over opposite sides of the formed

central wick to serve as wall screens in the tubular container. Reservoir screens having a generally U-shaped cross section normally engaged by the formed pleats can be additionally installed on both sides of the central wick in the tubular container.

3,822,744

STRAINING TUBE FOR PIPE WELL

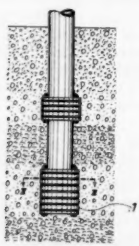
Yrjo Johannes Reijonen, and Veli Elias Reijonen, both of Siltasaarenkatu 14 A, Helsinki 53, Finland

Filed Sept. 18, 1972, Ser. No. 290,209

Claims priority, application Finland, Oct. 11, 1971, 2838/71

Int. Cl. E03b *3/18*; E21b *43/00*

U.S. Cl. 166—235 **4 Claims**



Straining tube for a pipe well, consisting of separate rings mutually joined by means of rods and which are separated by spacers disposed between them, located at a distance from each other and the cross section of which has the shape of a wedge tapering in the direction towards the interior of the tube. On the surface of the rings there are grooves for facilitating the entrance of water into the straining tube.

3,822,745

METHOD OF KILLING A WELL USING A COMPLETION AND KILL VALVE

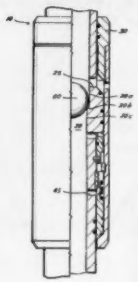
James D. Mott, Houston, Tex., assignor to Hydril Company, Los Angeles, Calif.

Division of Ser. No. 138,947, April 30, 1971, Pat. No. 3,750,752. This application Apr. 9, 1973, Ser. No. 349,010

Int. Cl. E21b *41/00*

U.S. Cl. 166—244 R **16 Claims**

A completion and kill valve adapted to be placed immediately above a packer in the well production tubing including a tubular member having an inner bore and a circulation channel therein permitting communication between the inner bore and the well annulus area adjacent the exterior of the tubular member. A movable sleeve closes or opens communication through the circulation channel in response to various pressures and a spring bias acting on the sleeve. Provi-



sions for locking the sleeve in the open position and subsequently unlocking the sleeve in response to inner bore pressure are provided.

3,822,746

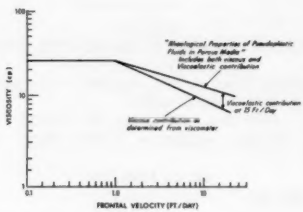
USE OF VISCOELASTIC FLUIDS FOR MOBILITY CONTROL

William B. Gogarty, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed Sept. 28, 1972, Ser. No. 293,294

Int. Cl. E21b *47/00*

U.S. Cl. 166—252 **7 Claims**



Viscoelastic fluids are efficiently utilized in flooding subterranean reservoirs by first flooding a porous medium representative of the reservoir rock with the formation fluids at the desired velocity of the oil recovery process, then flooding a similar porous medium with the viscoelastic fluid at the same velocity and observing the viscosity thereof and thereafter designing the oil recovery process based on this viscosity. It has been observed that the viscosity of viscoelastic fluids is dependent on the velocity. Examples of useful viscoelastic fluids include micellar solutions, aqueous solutions of polyacrylamides, etc.

3,822,747

METHOD OF FRACTURING AND REPRESSURING SUBSURFACE GEOLOGICAL FORMATIONS EMPLOYING LIQUIFIED GAS

James Q. Maguire, Jr., 210 N. Sherry, Norman, Okla. 73069

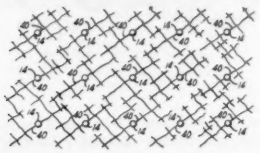
Filed May 18, 1973, Ser. No. 361,475

Int. Cl. E21b *43/26, 43/24*

U.S. Cl. 166—259 **12 Claims**

A method of forming a fracture system in a fracturable subsurface geological formation intersecting a closed borehole including introducing a quantity of liquified gas into the closed borehole to communicate with the fracturable formation; allowing the quantity of liquified gas to vaporize in the closed borehole whereby the resulting increase in pressure exceeds

the fracture pressure of the formation to form an initial group of fractures of a fracture system in the formation; rapidly introducing an additional quantity of liquified gas into the initial fractures in the formation; allowing the additional liquified gas in the initial fractures to rapidly vaporize therein to form a second group of fractures in the fracture system, some of which being aligned substantially normal to the initial fractures; rapidly introducing a third quantity of liquified gas through the initial fractures into the second group of fractures; and allowing the liquified gas within the second group of fractures to rapidly vaporize therein to form a third group of fractures in the fracture system, some of which being aligned substantially normal to the second group of fractures. The method also includes the steps of allowing the liquified gas in



the fracture system to completely vaporize therein; allowing the pressure in the borehole to decrease relative to increased gas pressure in the formation whereby a portion of the oil in the formation is driven therefrom into the borehole; and producing the oil from the borehole to the ground surface. The method also includes introducing pressurized steam into the fracture system to thermally stimulate the flow of oil from the formation into the borehole. The method also discloses introducing air into the fracture system; and burning the oil on the fracture faces to thermally stimulate flow of oil from the formation into the borehole. The method further includes introducing pressurized steam into the fracture system to thermally stimulate flow of oil from the formation into the borehole.

3,822,748

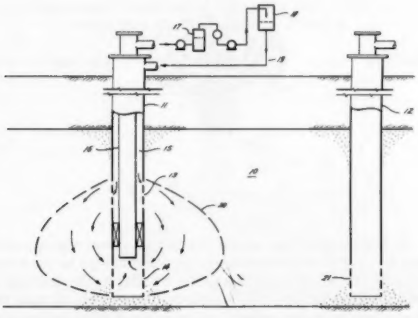
PETROLEUM RECOVERY PROCESS

Joseph C. Allen, Bellaire; Marc F. Fontaine, Houston; Alfred Brown, Houston, and Jack F. Tate, Houston, all of Tex., assignors to Texaco Inc., New York, N.Y.

Filed May 4, 1973, Ser. No. 357,408

Int. Cl. E21b *43/16*

U.S. Cl. 166—269 **12 Claims**



A process for producing petroleum from a subterranean reservoir is provided whereby a solvent equal in density or more dense than water is circulated between upper and lower perforations in a first well in order to dissolve petroleum in an ever-widening volume around the well bore until communication is established to a second well. At this point the production side of the first well is shut in, injection of solvent is ceased, an aqueous fluid is injected into the first well and production is taken from the second well.

3,822,749

METHOD OF TREATING SUBTERRANEAN FORMATIONS TO IMPROVE PERMEABILITY

Arnold B. Thigpen, Jr., Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Oct. 30, 1972, Ser. No. 301,904

Int. Cl. E21b *43/20, 43/24*

U.S. Cl. 166—303 **18 Claims**

A method of treating wells drilled in the earth and the subterranean formation surrounding and in fluid communication with the wells by injecting into the wells and surrounding formation a gaseous mixture comprising steam and an aliphatic polyamine such as ethylenediamine, diethylenetriamine, triethylenetetramine, or piperazine, to increase the fluid permeability of the formation, especially formations which have sustained a permeability decline due to contacting water sensitive clay with fresh water.

3,822,750

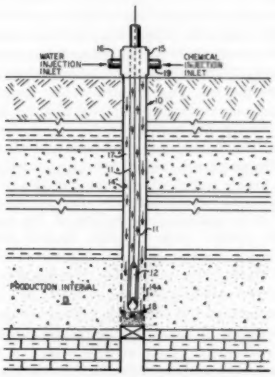
METHOD AND APPARATUS FOR CLEANING A PRODUCING WELL

Willard H. Ping, Coalinga, Calif., assignor to Texaco Inc., New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,175

Int. Cl. E21b *43/00*

U.S. Cl. 166—309 **5 Claims**



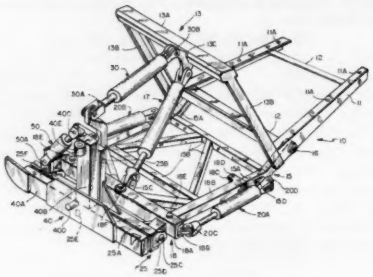
A method for cleaning the sand from an oil-bearing sand producing well penetrating a sandy stratigraphy and at least one apparatus for carrying out the method is disclosed. The apparatus comprises an injector at the top of a production tube for injecting water and a soap concentrate down the annulus externally of the tube in the well for forming a sand-bearing aqueous solution at the sand level and a pump in the tube at the sand level for forcing the sand-bearing foamy aqueous solution with the oil-bearing sand through the pump and up the production tube to the surface.

3,822,751

MOUNTING ASSEMBLY FOR ATTACHING A MATERIAL TREATING BLADE TO A VEHICLE

Donald H. Waterman, Poland, Maine, assignor to Valley Engineering, Inc., Gary, Maine

Filed June 12, 1973, Ser. No. 369,238
Int. Cl. E02f 3/76
U.S. Cl. 172—776 8 Claims



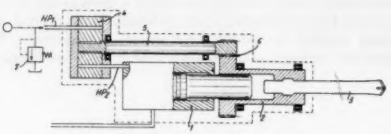
A mounting assembly for attaching a material treating blade to a vehicle such as a tractor which provides a material treating blade which is adjustable in height and the cutting angle of which is adjustable in three planes so that it is better adapted to grading, shaping and plowing soil and snow surfaces and to developing desired grades in movable matter. The assembly comprises first frame means for attachment to a vehicle, second frame means extending forwardly from the first frame means, first pivot means for securing one end of the second frame means to the first frame means for movement about an axis which is substantially horizontal and substantially normal to the longitudinal centerline of the second frame means when viewed from the top, first double acting hydraulic motor means pivotally connected between the first and second frame means for moving the second frame means about the first pivot means, third frame means adjacent to the forward end of the second frame means, second pivot means for securing the third frame means to the second frame means for movement about an axis which is substantially vertical and substantially normal to the longitudinal centerline of the second frame means when viewed from the side, second double acting hydraulic motor means pivotally connected between the second and third frame means for moving the third frame means about the second pivot means, fourth frame means adjacent to the forward end of the third frame means, third pivot means for securing the fourth frame means to the third frame means for movement about an axis which is substantially horizontal and substantially normal to the longitudinal centerline of the third frame means when viewed from the top, third double acting hydraulic motor means pivotally connected between the first and fourth frame means for moving the fourth frame means about the third pivot means, fifth frame means adjacent to the forward end of the fourth frame means which is adapted to support a material treating blade, fourth pivot means for securing the fifth frame means to the fourth frame means for movement about an axis which is substantially horizontal and fourth double acting hydraulic motor means pivotally connected between the fourth and fifth frame means for moving the fifth frame means about the fourth pivot means.

3,822,752

ROCK DRILL

Roger Montabert, 19 Avenue des Colonnes, Bron, France

Filed Feb. 25, 1972, Ser. No. 229,311
Claims priority, application France, Mar. 18, 1971, 71.10059
Int. Cl. B25d
U.S. Cl. 173—106 3 Claims



A rock drill actuated solely by a liquid medium under pressure comprises a hydraulic motor for rotating the drill steel and another hydraulic motor for applying axial blows to drill; said motors are hydraulically connected in series, with a valve regulator inserted in the supply circuit upstream of the rotational motor. The striker motor is supplied with liquid both from the outlet of the rotational motor and from an additional source of fluid under a pressure equal to the outlet pressure of said rotational motor, a pressure-adding valve being mounted as a buffer valve between the liquid inlets of the two motors.

3,822,753

DUAL ACTION DRILL PIPE MUD WIPER

Robert B. Tate, 945 Locust Ave., No. 16, Long Beach, Calif. 90813

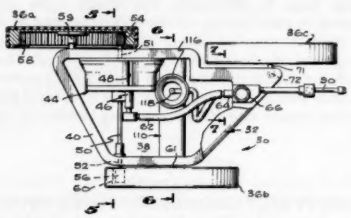
Filed July 25, 1973, Ser. No. 382,514
Int. Cl. E21b 33/08
U.S. Cl. 175—84 10 Claims

A resilient drill pipe mud wiper having a dual wiping action that is capable of being mounted on the drill pipe below a split bushing of a rotary table that drives a Kelly. As the drill pipe is moved upwardly from a bore hole containing drilling mud, the mud wiper by a dual wiping action removes mud adhering to the drill pipe therefrom and allows the scraped drilling mud to drain downwardly into the bore hole by gravity. The mud wiper is of such structure that a bit of greater transverse cross section than that of the drill pipe to which it is secured, may pass through the mud wiper without damage to the latter.

3,822,754
AUTOMATIC SWIMMING POOL CLEANER

Melvyn L. Henkin, 19640 Greenbriar Dr., Tarzana, Calif. 91356, and Jordan M. Laby, 3940 Davana Rd., Sherman Oaks, Calif. 91403

Filed July 26, 1972, Ser. No. 275,173
Int. Cl. E04h *3/20;* **A47l** *5/00*
U.S. Cl. 180—1 R **19 Claims**

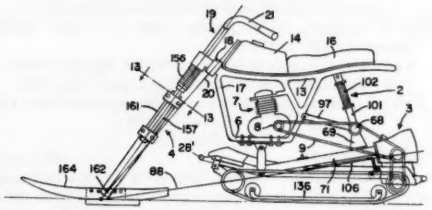


An automatic swimming pool cleaner comprised of a car adapted to travel underwater along a random path on the pool vessel surface for dislodging debris therefrom. The car wheels are driven by a water powered turbine to propel the car in a forward direction, along the vessel surface. In order to prevent the car from being driven into a position, as for example against a vertical wall, from which it cannot emerge, a wheel geometry is employed which, upon contact, develops a horizontal force component parallel to the vertical wall, to thus enable the car to spin off. Alternatively, or in combination, a water flow produced reaction force can produce a torque to turn the car with respect to the engaged wheel to enable the car to spin off. The car is designed with a low center of gravity and a relatively buoyant top portion so as to produce a torque which maintains the car correct side up when on the pool bottom. Means are provided on the car for producing a water flow having a force component perpendicular to the vessel surface to provide good traction between the car wheels and the vessel surface. Further, a water flow produced suction is created adjacent to the vessel surface for collecting debris into a basket carried by the car. In addition, one or more hoses is pulled by the car and whipped by water flow to sweep dirt from the vessel surface.

3,822,755
KIT FOR CONVERTING CONVENTIONAL MOTORCYCLE INTO SNOWMOBILE

Derek L. Hine, Palo Alto, Calif., assignor to Advanced Recreation Equipment Corporation, Mountain View, Calif.

Filed July 21, 1972, Ser. No. 273,972
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 R **16 Claims**

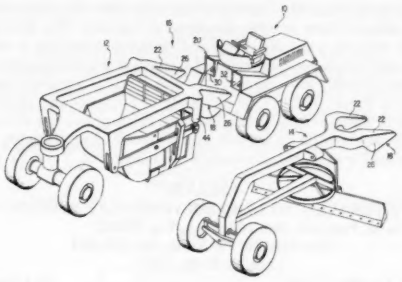


Presented is a kit for attachment to the frame and power unit of a conventional motorcycle from which the front and rear wheels have been removed to convert the conventional motorcycle into a snowmobile.

3,822,756
MULTIPLE IMPLEMENT COUPLING STRUCTURE

William E. Martin, Martin Company, P.O. Box 187, Kewanee, Ill. 61443

Filed Mar. 17, 1972, Ser. No. 235,543
Int. Cl. B60d *1/00*
U.S. Cl. 180—14 R **37 Claims**



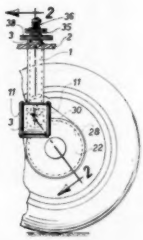
Each of a plurality of implements may be precisely aligned and rigidly coupled with the same traction unit through the intermediary of coacting cam surfaces and power operated latching means. The aligning and coupling as well as decoupling operations are controlled from the operator's station on the traction unit. Separate coacting cam surfaces on each of the implements cooperate with complementary cam surfaces on the traction unit to effect both horizontal and vertical alignment as a function of driving the traction unit into engagement with the selected implement. Immediately following this alignment procedure, by driving, which auotmatically effects three dimensional adjustment between the implement and traction unit, the power operated latch is actuated to rigidly couple the implement and traction units into an integrated unit.

One purpose of the very precise alignment is to facilitate a concomitant hydraulic coupling between the traction unit and implement while another advantage, relying more on the rigidity of the coupling, is to provide that functionally unitary frame structure characterizing certain conventional earth moving equipment such as scrapers and patrol graders.

3,822,757
INDIVIDUAL VEHICLE WHEEL DRIVE AND SUSPENSION ASSEMBLY

William George Spence, 2372 Wilson Ave., Montreal, Quebec, Canada

Continuation-in-part of Ser. No. 68,618, Sept. 1, 1970, Pat. No. 3,689,101. This application June 26, 1972, Ser. No. 266,135
Int. Cl. B60b *39/00*
U.S. Cl. 180—43 A **9 Claims**



A drive and suspension assembly for an individual roadwheel of a vehicle including a rearwardly and downwardly inclined lever arm pivotally connected to the vehicle frame at its upper end and rotatably supporting the

roadwheel at its lower end, a main gear fast with the roadwheel and a drive pinion journalled on the lever arm and meshing with the main gear to drive the same. The pinion, during rotation to produce forward movement of the vehicle tends to walk around the main gear so as to produce an upward bias on the lever arm and consequently on the vehicle frame thereby forming a drive induced suspension for the vehicle and increasing the traction of the roadwheel. Abutment means limit the rotation of the lever arm with respect to the vehicle frame in both directions of rotation. The driving train includes a serially connected yieldable drive link to absorb the variations in the rotational speed of the driving pinion caused pivoting movement of the lever arm with respect to the vehicle frame. The pivotal mounting of the lever arm on the vehicle frame is angularly adjustable to allow the use of the drive assembly on either side of the vehicle. The assembly is adapted for steerable mounting of the roadwheel.

3,822,758

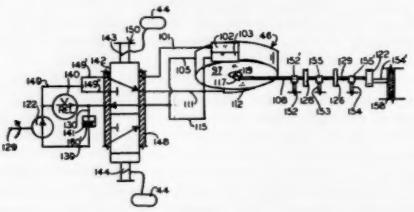
HYDRAULIC MULTIPLIER VEHICULAR SYSTEM

Ervin M. Pancoast, Box 242, Vega, Tex. 79092

Filed Feb. 20, 1973, Ser. No. 333,498

Int. Cl. B60k *17/02*

U.S. Cl. 180—70 R **10 Claims**



High torque multiplication with ready reversibility and absence of surging are obtained by a pair of oppositely toothed circular rotors fixed to a circular separator therebetween and smoothly rotatably fitted in a co-axial cylindrical chamber and fed by high pressure fluid. The combination of such rotor and chamber is utilized in a system including a clutch drive switchably passing fluid through or past such combination of rotors and rotor chamber and in reversible directions. The preferred system is a vehicle.

3,822,759

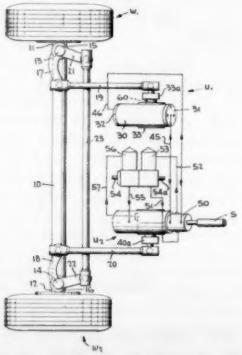
POWER STEERING GEAR ASSEMBLY

Richard H. Sheppard, c/o R. H. Sheppard Co., Inc., Hanover, Pa. 17331

Filed Mar. 7, 1972, Ser. No. 232,420

Int. Cl. B62d *5/10*

U.S. Cl. 180—79.2 R **8 Claims**



The cylinder housing of a power steering gear is provided with a hollow piston having a rack meshing with the output gear, also enclosed within said housing. Fluid check valve means are provided at each end of the piston to prevent passage of high pressure working fluid during the power stroke but to allow the escape of high pressure fluid from the hollow interior of the piston to the exhausted or soft side of the piston. Lateral ports are provided in the piston communicating with the hollow interior and with the rack to bleed high pressure fluid from the enclosing space of the output gear so that buildup of fluid pressure due to leakage past the piston sealing rings is prevented. The check valve means are mounted in caps closing off the hollow interior of the piston and fluid is supplied and withdrawn from the chambers through a single fluid transfer hose at each end. The gear assembly is particularly adapted to use as a slave power steering gear unit, which is designed to provide 50 percent of the force in a dual system with 50 percent being handled by the master unit.

3,822,760

SAFETY BELT ARRANGEMENT FOR INDIVIDUALS

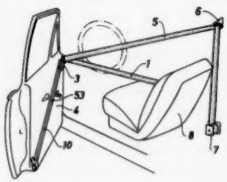
Oskar Lennart Lindblad, Hedasgatan 16, 77020 Vargarda, Sweden

Filed Sept. 9, 1971, Ser. No. 179,134

Claims priority, application Sweden, Sept. 9, 1970, 12225/70; Sept. 25, 1970, 13045/70; Nov. 2, 1970, 14714/70; Dec. 30, 1970, 17726/70; Dec. 31, 1970, 17858/70; Feb. 10, 1971, 1094/71

Int. Cl. B60r *21/10*

U.S. Cl. 180—82 C **20 Claims**



Safety belt arrangement for vehicles which includes belts positions for extending across the body of a person sitting on a seat in the vehicle with one end of the strap secured to the vehicle on a side of the seat opposite a side wall of the vehicle and the other end of the strap slideably connected on the inside of a door of the vehicle and means for automatically displacing the belt along said door upon operation of the ignition circuit from in front of the seat to across the person.

3,822,761

LOAD BEARING AIR CUSHION APPARATUS

Jack F. Vaughen, 26807 Spring Creek Rd., Palos Verdes Peninsula, Calif. 90274

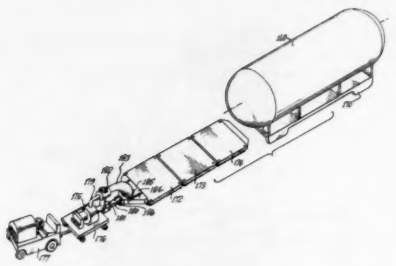
Continuation-in-part of Ser. No. 819,860, April 28, 1969, abandoned, which is a continuation-in-part of Ser. No. 734,361, June 4, 1968, abandoned. This application Dec. 16, 1971, Ser. No. 208,879

Int. Cl. B60v *1/16*

U.S. Cl. 180—121 **18 Claims**

Apparatus capable of lifting, supporting, and moving weight on cushions of air wherein air is controllably admitted under pressure into areas encompassed by bounding sealing assemblies to form supporting cushions between the base of said apparatus and a support surface over which the apparatus moves, or alternatively between the base of said apparatus and a flat-bottomed load moved across its air cushions, with faces of said sealing assemblies spaced a small distance from said support surface or flat-bottomed load by air leakage under the

sealing means, each said sealing assembly comprising a flexible airtight hanger and annular structure projecting downward

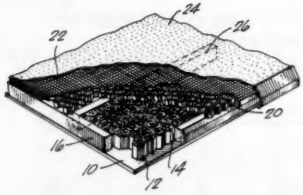


from the hanger. The annular structure includes resilient mounting means attaching the sealing means to the hanger.

3,822,762
DECORATIVE ACOUSTIC PANEL

Thayer S. Crispin, Newport Beach, and Fred E. Duskin, Garden Grove, both of Calif., assignors to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Sept. 23, 1971, Ser. No. 183,161
Int. Cl. B23b *3/12*
U.S. Cl. 181—33 **5 Claims**

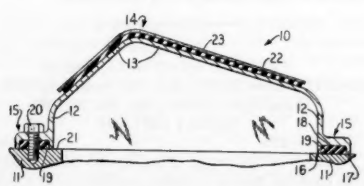


An acoustic panel having a honeycomb core with edge members for mounting. A second honeycomb material over the first and the edge members spaces them from the decorative face sheet to prevent undesirable surface imperfections called markoff from appearing on the face sheet.

3,822,763
ANTI-NOISE ROCKER ARM COVER

Robert E. Adams, Chillicothe; Gary O. Bragg, Peoria; Nelson A. Jones, Peoria, and Roger E. Treick, Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Oct. 2, 1972, Ser. No. 294,254
Int. Cl. E04b *1/99*; **G10k** *11/04*
U.S. Cl. 181—33 K **13 Claims**

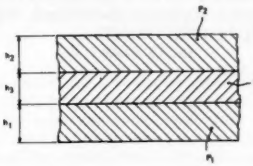


A rocker arm cover is attached to an internal combustion engine by circumferentially disposed cap screws which extend through a peripheral flange formed on the cover. An elastomeric gasket is disposed between the flange and the engine to form a static seal thereat. An elastomeric, noise-suppressing pad is bonded to an outer surface of the cover and to a plate, overlying the pad. In one embodiment, the pad constitutes a continuous sheet which is substantially coextensive with the top wall of the cover whereas in a second embodiment the pad constitutes an endless strip.

3,822,764
STRUCTURAL ELEMENTS HAVING HIGHLY IMPROVED SOUNDPROOFING CHARACTERISTICS

Marcel Marie Antoine Val, Clermont-De-L'Oise, France, assignor to Saint-Gobain Industries, Neuilly-Sur-Seine, France

Filed Sept. 22, 1972, Ser. No. 291,190
Claims priority, application France, Nov. 25, 1971, 71.42221; July 20, 1972, 72.26130
Int. Cl. E04b *1/84*
U.S. Cl. 181—33 G **39 Claims**

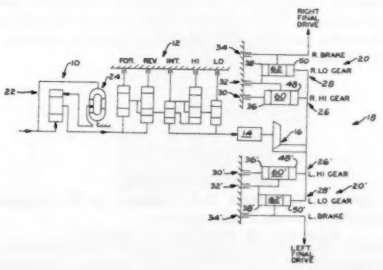


Structural elements exhibiting extraordinary soundproofing characteristics comprised of two rigid layers with an intermediate layer of resilient material integrated in composite unitary mass wherein the thickness of the layers, their modulii of elasticity and shear, as well as physical properties, are critically interrelated to impose sound-deadening effects therethrough. Such structural elements are especially effective when used as facings for insulating elements of fibrous, porous or cellular materials, especially where such are applied to the opposite side of the latter, in which case the resulting insulating assemblies present many advantageous features in the fields of building constructions and other industrial locales.

3,822,765
PLANETARY POWER STEER CROSS DRIVE TRANSMISSION AND CONTROL SYSTEM WITH LUBRICATION PASSAGES IN PLANET CARRIERS

Walter D. Heller, Washington, and William W. Blake, Wyoming, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 10, 1972, Ser. No. 233,552
Int. Cl. F16h *37/08*
U.S. Cl. 184—6 **3 Claims**



An improved track-type tractor transmission cross drive having a minimum reduction through use of planetary gears is

provided. The cross drive enables modulation of power to an inside track for all but the smallest radius turns, while modulated brake operation enables essentially pivot steering to be accomplished. Enhanced oil distribution and cooling of brake elements are also provided. Also provided is a control system that produces powered turns as a function of steering wheel rotation. Phasing and modulation of low, high, and service brakes on each track are achieved by a cam controlled and boosted modulating reducing valve, selector spools, and an overriding service brake valve.

3,822,766

PROCESS AND A DEVICE FOR THE FINE POSITIONING OF A VERTICALLY MOVABLE PLATFORM IN FRONT OF A PALLET LOCATION

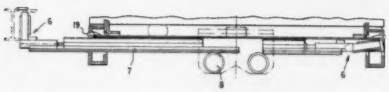
Walter Suter, Buchs, Switzerland, assignor to Oehler-Wyhlen-Lagertechnik AG, Aarau, Switzerland

Filed July 19, 1972, Ser. No. 273,143

Claims priority, application Switzerland, July 20, 1971, 10775/71; Aug. 11, 1971, 11836/71

Int. Cl. B66b *1/40*

U.S. Cl. 187—29 R **18 Claims**



A process for automatically positioning a platform in front of a pallet location to effectuate the deposit or removal of a palletized load therein which is accomplished by moving the platform to an approach position above the floor of the pallet location, actuating sensing means disposed on said platform after the approach position is reached, lowering the platform thereby causing the sensing means to compare the distance traversed by the downwardly moving platform in relation to the pallet location with a predetermined reference distance to and when such distances are equal the sensing means causes the drive motor for said platform to stop. The sensing means disclosed may be either an electromechanical device which is extended from its recessed position within the platform to a working position and has a tongue member attached to a pivotal portion of the device which engages the pallet floor and operates switching means controlling the movement of the platform or the device may be a photoelectric scanner comprised of a transmitter which emits a focused light beam, e.g., a microlaser, and a receiver which receives the reflected beam from the pallet floor through an adjustable aperture in front of the receiver.

3,822,767

ELEVATOR SYSTEM

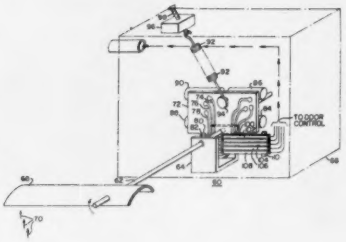
James Lowry, Maplewood, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 15, 1973, Ser. No. 388,532

Int. Cl. B66b *13/14*

U.S. Cl. 187—52 **7 Claims**

An elevator system including an elevator car having doors operable to a closed position according to a predetermined force pattern, and force modifying apparatus which increases the magnitude of the predetermined force pattern in response to the velocity of wind in the hoistway which applies a drag to



the closing doors, to overcome the drag and close the doors without exceeding a predetermined resultant closing force.

3,822,768

CONE FRICTION BRAKE

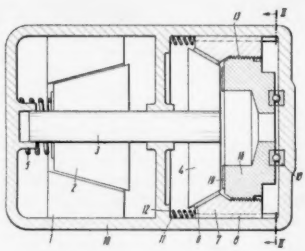
Johannes Sebulke, Gevelsberg, Germany, assignor to DEMAG Aktiengesellschaft, Duisburg, Germany

Filed Sept. 25, 1972, Ser. No. 292,082

Claims priority, application Germany, Oct. 20, 1971, 2152256

Int. Cl. F16d *53/00*

U.S. Cl. 188—70 R **9 Claims**



Disclosed herein is an improved cone friction brake with an interior brake drum and an exterior brake ring having a brake lining disposed therebetween. The brake drum is connected to an axially displaceable shaft on the apparatus, e.g., an electric motor, to be braked, while the brake ring, which is non-rotatable, is mounted for limited displacement in the apparatus housing by a unique self-adjusting mechanism.

3,822,769

PANHEAD DRAG MECHANISM

Chadwell O'Connor, 2024 Galaxy Dr., Pasadena, Calif. 92660

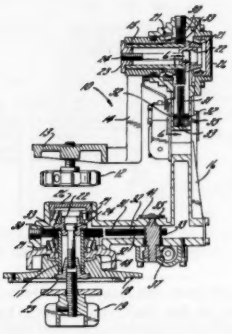
Filed Sept. 27, 1972, Ser. No. 292,789

Int. Cl. F16d *57/04*

U.S. Cl. 188—290 **4 Claims**

A panhead for mounting, panning and tilting instruments such as cameras having a smooth, uniform drag mechanism, requiring virtually no initial extra breakaway force, in which drag resistance is provided between a shaft and a relatively rotatable housing by the interaction between a plurality of disks fixed perpendicularly on the shaft and a stack of drag

plates mounted to slide into interleaved relationship with the disks. The disks and plates are surrounded by a viscous fluid



and are closely spaced, on the order of 0.001 of an inch, but not in contact. A worm drive for positioning the plates holes them in adjusted position.

3,822,770

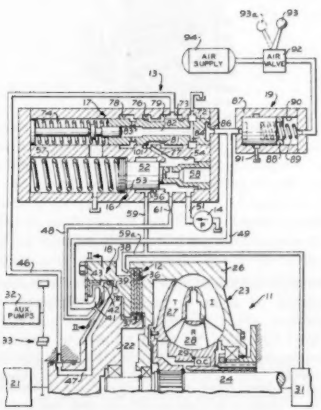
SPEED SENSITIVE CONTROL SYSTEM FOR SLIPPING CLUTCH

Kenneth F. Golan, Pekin, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed May 8, 1972, Ser. No. 251,101

Int. Cl. F16d *43/284*

U.S. Cl. 192—103 F **4 Claims**



A control system for regulating a hydraulically actuated variable coupling or slipping clutch in a drive train including a source of fluid under pressure, a reducing valve for adjustably communicating the source with the clutch, a speed sensor in the drive train to which the reducing valve is responsive, and a manual control for selectively biasing response of the valve to the speed sensor. The speed sensor preferably comprises a pitot tube arranged to develop fluid pressure in proportion to rotating speed of a part of the drive train. In a preferred embodiment, the drive train has a torque converter with an input shaft coupled to a prime mover and auxiliary driven equipment, the variable coupling or slipping clutch being adapted to vary torque absorption capacity of the torque converter.

3,822,771

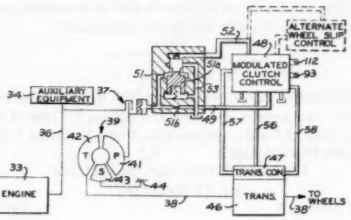
INTERRELATED CONTROLS FOR A MOTOR AND SLIPPING CLUTCH

Sidney J. Audiffred, Washington; David W. Bump, Morton; Raymond N. Erkkila, Morton; Lowell S. Johnson, Morton, and Shairyl I. Pearce, East Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 27, 1971, Ser. No. 212,206

Int. Cl. B60k *29/00*

U.S. Cl. 192—.084 **14 Claims**



A control system for a vehicular drive train including a slipping clutch for proportioning power from a prime mover to implements and a primary output shaft of the vehicle including a manual control conditioned by a manual selector to vary engagement of the slipping clutch through a regulating valve in a first mode of vehicle operation and to regulate acceleration of the prime mover in a second mode of vehicle operation. Additional elements of the control system include an adjustable wheel slip sensing mechanism preferably associated with the manual control, a bypass valve associated with the regulating valve and preferably with a hydraulically operable transmission in the drive train for maintaining a positive drive coupling through a torque coverter coupled with the slipping clutch and an input valve also associated with the transmission to condition the slipping clutch for receiving a substantial portion of shock loading applied to the drive train.

3,822,772

CLUTCH DISC RELEASING SPRING WITH AUTOMATIC WEAR COMPENSATOR

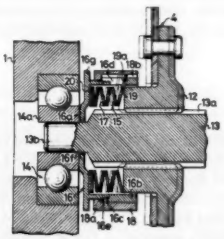
Kiyoharu Murakami, Osaka, Japan, assignor to Kabushiki Kaisha Daikin Seisakusho, Prefecture, Japan

Filed Feb. 27, 1973, Ser. No. 336,367

Claims priority, application Japan, Mar. 10, 1972, 47-25015

Int. Cl. F16d *13/75*

U.S. Cl. 192—111 A **4 Claims**



An apparatus comprises a holder fixedly mounted on a main drive shaft, a spring member retained in the holder to move a clutch disc to its neutral position when the clutch is disengaged, an adjusting member supported by the holder and governed by the holder with respect to the amount of its axial

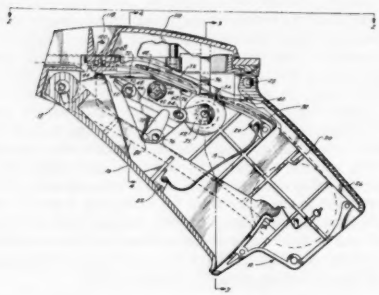
movement, and a dished spring member interposed between a free end of the spring member and an end face of spline hub of the clutch disc and having an outer conical slanting face in engagement with the free end of the spring member and an inner conical slanting face in engagement with the end face of the spline hub. A plurality of hornlike extensions extending from the slanting portion of the dished spring member have distal ends in elastic engagement with the inner face of the adjusting member. Upon a clutch disengaging operation, the dished spring member forcibly brings the clutch disc to its neutral position. The space between the friction surface of a flywheel and the friction facing of the clutch disc in its neutral position is always kept constant by automatic adjustment.

3,822,773

EMBOSSING TOOL WITH CONTROLLED SPACING

Donald E. Van Arnam, Surfside, and Clifton P. Colwell, Claremont, both of Calif., assignors to Avery Products Corporation, San Marino, Calif.

Filed Dec. 8, 1972, Ser. No. 313,269
Int. Cl. B41j *1/30*
U.S. Cl. 197—6.7 **10 Claims**



There is described an embossing tool for embossing characters on plastic tape in which the incremental feed of the tape with each stroke of the operating lever of the embossing tools may be controlled from a selector knob. The same selector knob can be used to prevent any incremental advance of the tape during an embossing stroke of the tool's operating lever. The character punches are molded on a single annular flexible ring which is rotatably mounted on a stationary hub together with a second rigid ring on which the character dies are formed. The punch and die rings are locked on the hub to form an assembly having a large central opening in which can be positioned the tape guiding and advancing mechanisms, and which can be readily removed and replaced as an assembly.

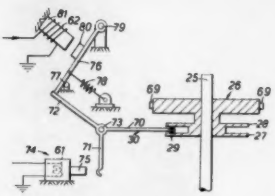
3,822,774

TYPE HOLDER POSITIONING DEVICE FOR TELETYPEWRITER OR THE LIKE

George Edward Bucksey, Burgess Hill, England, assignor to International Standard Electric Coporation, New York, N.Y.

Filed July 25, 1972, Ser. No. 274,974
Claims priority, application Great Britain, July 29, 1971, 35645/71
Int. Cl. B41j *1/22*
U.S. Cl. 197—18 **2 Claims**

A type holder positioning device for a teletypewriter or the like including a shaft to which the holder is fixed, a pair of flanges on the shaft between which a rod is located to raise and to lower the shaft and holder. The holder therefore does not interfere with the reading of a typed message during intervals of non-use or where one or a series of spaces are upcoming. A solenoid operator and a solenoid releasable latch work



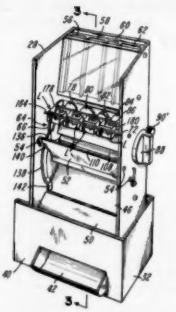
in concert from present and future space information to control the position of the shaft and holder. Operation of the operator and latch also reduces equipment wear.

3,822,775

VENDING MACHINE WITH VARIABLE CAPACITY COIN TRAPS

Mitchell Adam Hall, Ft. Thomas, Ky., assignor to Monarch Tool & Manufacturing Company, Covington, Ky.

Filed Dec. 21, 1972, Ser. No. 317,705
Int. Cl. G07f *11/02*
U.S. Cl. 194—63 **32 Claims**



The invention relates to improved means for accumulating a given number of coins or tokens of different values or denominations, which together will equal a predetermined sum or total valuation required to initiate dispensing of a priced commodity or service. Throughout the disclosure, the terms "coins" and "tokens" are used interchangeably, in order to avoid undesirable prolixity of verbage.

3,822,776

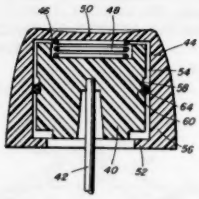
TACTILE KEYCAP

Albert R. Pratt, Weston, Mass., assignor to Raytheon Company, Lexington, Mass.

Division of Ser. No. 268,418, July 3, 1972, abandoned. This application Jan. 26, 1973, Ser. No. 326,919
Int. Cl. B41j *5/12*
U.S. Cl. 197—103 **4 Claims**

A keycap for attachment to the keys of a keyboard such as used on typewriters, computers, key punchers and the like, comprising a shell carried by a key-mounted hub, and spring

means between the shell and hub for providing a sensory indication of key operation to the operator when the key is



depressed, which spring means may be a click or snap to simultaneously also provide an audible signal.

3,822,777

JUNCTION SWITCH FOR CONVEYING SYSTEMS

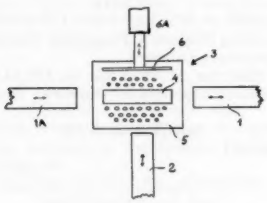
Jens Thomsen Jepsen, Hjerting, Denmark, assignor to K. J. Maskinfabriken A/S, Hjerting, Denmark

Filed May 17, 1972, Ser. No. 254,081

Claims priority, application Denmark, June 2, 1971, 2674/71

Int. Cl. B65g *47/26*

U.S. Cl. 198—31 AB **3 Claims**



Conveyor system for bundles of papers, such as newspapers and weeklies, having several conveying tracks meeting at a junction which includes an air cushion table. A conveying track on the table that runs in the direction of one output conveying track is vertically adjustable and a transverse conveyor is provided to push the air cushion-supported bundles transversely of the running direction of the track on the table when this last-mentioned track is lowered. Hence the bundles can be pushed onto a second output conveying track without damage to the lower sheets in the bundle.

3,822,778

LUMBER CAM LIFTING MECHANISM

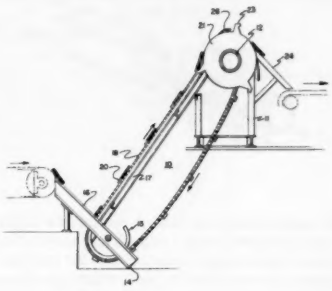
Jesse C. Coats, P. O. Box 167, Horse Shoe Bend, Idaho 83629

Filed Jan. 27, 1971, Ser. No. 110,227

Int. Cl. B65g *37/00;* **B15g** *47/00*

U.S. Cl. 198—103 **1 Claim**

The cam lifter feed mechanism of this invention comprises an inclined endless chain conveyor carried by an upper framework and a lower framework including a multiplicity of lug-like lumber engaging means mounted at intervals on the endless chains of the conveyor, a driven shaft journaled for roatation in the upper framework including sprockets operatively engaged with endless chains of the conveyor, a plurality of cam lifters mounted on the shaft at opposite terminal sides of the endless chain conveyor including outwardly projecting hook-like foot portions being operable to engage the lowermost terminal edge of lumber carried on the conveyor by the lug-like engaging means and to carry the lumber over the shaft to a point of discharge, a downwardly inclined discharge feed guide means mounted on the upper framework between cam lifters. The lower framework having a pair of opposing hopper forming downwardly inclined side frame members being operable to guide lumber toward the endless chain conveyor, means mounting the endless chain conveyor distally near the



lowermost end of the downwardly inclined side frame member. The hook-like foot portions each have a leading edge downwardly inclined with respect to the radii of the cam lifter at an angle coincident with the angle of inclination of the endless chain conveyor, the foot portion issuing upwardly from the leading edge into a hook forming portion.

3,822,779

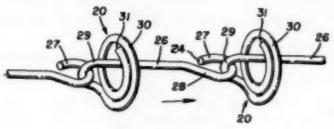
FLEXIBLE MATERIAL CONVEYING CHAIN OF INTERLOCKING IDENTICAL WIRE LINKS

James H. McAuley, Bremen, Ohio, assignor to McAuley Manufacturing Inc., Bremen, Ohio

Filed Jan. 26, 1973, Ser. No. 326,583

Int. Cl. B65g *19/00*

U.S. Cl. 198—168 **9 Claims**



A chain consisting of interlocking links all of which are identical and each of which is formed from a single piece of wire. Each link includes a circle in a plane transverse of the center line of the chain to provide a flight for conveying granular or other material through a tube or trough in which the chain may be mounted.

3,822,780

SOFT CONTACT LENS CASE

Walter R. Ulmer, Huntington Beach, and Kiran J. Randeri, Santa Ana, both of Calif., assignors to Allergan Pharmaceuticals, Irvine, Calif.

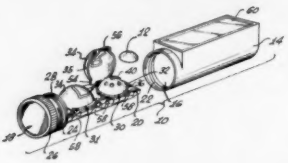
Filed Aug. 7, 1972, Ser. No. 278,427

Int. Cl. A45c *11/04;* **B08b** *3/04*

U.S. Cl. 206—5.1 **12 Claims**

A case for storing soft contact lenses, usually in a liquid which cleans and sterilizes the stored lenses, comprising a container having a threaded, fluid-tight closure cap, a base plate on the cap insertable in the container as the cap is placed on the container, and two upwardly opening compartments in the base plate for receiving two lenses, each compartment containing a perforated hemispherical lens support that is mounted in the compartment for movement between a

lowered, retracted position and a raised, extended position. A hinged cap covers each compartment and is releasably latched in a closed position over the lens support, which is movable to the raised position by means of a push button extending



through the underside of the base. A lost-motion connection limits the back and forth motion of each lens support, and the cover cups are held in spaced relation with the base and with the lens supports, when closed, to prevent damage to lenses on the supports.

3,822,781

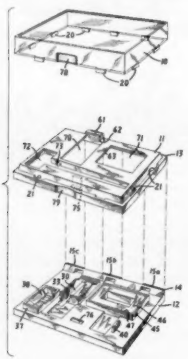
ARTICLE DISPLAY CONTAINER

Paul A. Braginetz, Augusta County, Calif., assignor to Philips Morris Incorporated, New York, N.Y.

Filed Apr. 19, 1972, Ser. No. 232,164

Int. Cl. B65d *25/10, 77/28*

U.S. Cl. 206—45.14 **4 Claims**



A container of plastic material for articles comprising as a particular embodiment a razor and concomitants such as a blade dispenser, the container embodying three main elements comprising a base, a masking platform and a cover, the base having depressions or pockets or other means for releasably holding the article parts in predetermined positions, the platform being normally positioned over the base and having viewing openings therethrough registering with the respective article parts, the base and platform being cast of plastic as a one piece unit with integral flexible hinges, the cover being originally cast separately but in assembly permanently secured over the platform, and the base and platform unit being composed of opaque material and the cover of transparent material whereby with the container closed the article parts are viewable through the cover at the platform window openings.

3,822,782

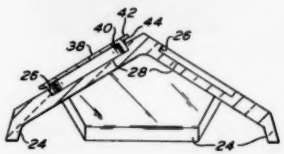
COIN DISPLAY DEVICE

Louis A. Ringle, Wilmington, Del., and Jack M. Brown, Jr., Sharon Hill, Pa., assignors to The Franklin Mint, Inc., Franklin Center, Pa.

Filed Feb. 14, 1972, Ser. No. 225,779

Int. Cl. A45c *11/28*

U.S. Cl. 206—.83 **7 Claims**



A coin display device comprised of three generally pentagonal supports that are interconnected along adjacent sides and their included angle. Each of the supports has a recess for receiving a closure. The closure has nibs therein for frictionally engaging a coin to be displayed.

3,822,783

DISPLAY HOLDER OR SALES UNIT

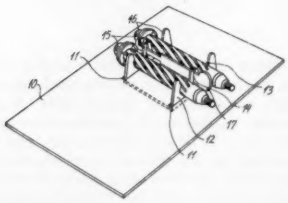
Louis Aackersberg Mortensen, Petersholm, Hillerodvej 1, DK-3480, Fredensborg, Denmark

Filed Mar. 22, 1972, Ser. No. 237,143

Claims priority, application Denmark, Mar. 22, 1971, 137571

Int. Cl. B65d *73/00*

U.S. Cl. 206—223 **6 Claims**



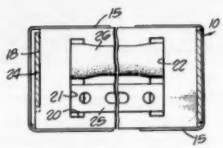
The invention relates to a display holder for holding elongated objects, for example substantially cylindrical screw anchoring devices, drills, etc., and to a sales unit comprising such display holder in which objects of the said type are mounted. The display holder comprises a sheet or plate member, such as a cardboard member which may carry advertising and/or informative printed matter, and a holder member having an abutment part engaging one side of said sheet or plate member and one or more transverse parts extending through slots or openings in the plate member and being adapted to retain elongated objects adjacent to the other side of the plate member. The holding member is preferably formed as a channel member with spaced parts extending through said slots or openings in the plate member. Furthermore, these flange parts may be provided with holes or pairs of projections defining recesses between them for resiliently receiving and retaining said elongated objects adjacent to said second side of the plate member. When retained by the holding member these objects prevent the holding member from being separated from the plate member.

3,822,784

COMBINED SHIPPING AND DISPENSING CARTON FOR CONTINUOUS BONDING STRIP AND INSULATED TUBING THEREFOR

John T. Thompson, 244 Loring St., Los Angeles, Calif. 90024, and George W. Gillemot, 2331 20th St., Santa Monica, Calif. 90405

Filed May 30, 1972, Ser. No. 257,693
Int. Cl. B65d *85/67*
U.S. Cl. 206—391 8 Claims



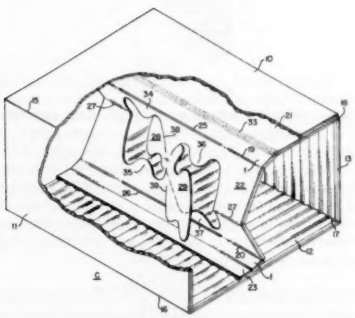
A combined shipping and dispensing carton of continuous lengths of separately coiled bonding strip or strap and insulated tubing therefor. The two coils lie side by side in a one-piece carton having a cover flap extending along one end edge and selectively lockable in either of two closed positions. In one position the flap lies flush against the end edge of the carton and, in the other, it is arched away from the end edge to provide a carrying handgrip. The leading ends of the strip and tubing are held captive by the cover in each locked position thereof.

3,822,785

SLEEVE CONTAINER FOR LAMP BULBS OR THE LIKE, AND RESULTING PACKAGE

Edward J. Getz, Irvington, and Thomas Barbieri, Peapack, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 13, 1972, Ser. No. 297,526
Int. Cl. B65d *85/42, 5/04*
U.S. Cl. 206—422 14 Claims



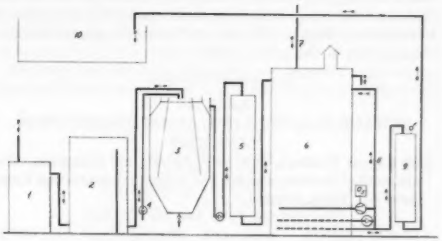
A pair of lamp bulbs are retained within an open-ended tubular wrapper of stiff paperboard by a partition which includes a pair of hinged flaps that are displaced by the inserted bulbs. The partition is slit and scored and secured to the walls of the sleeve in such a manner that it controllably buckles and provides a "floating" action which securely locks the bulbs within the sleeve without rupturing the partition or causing the sides of the sleeve to bulge. Bulb retention is also enhanced by using flaps which are contoured to provide tubular segments on the partition which engage and press the bulbs against the sleeve walls.

3,822,786

APPARATUS FOR TREATING AND PURIFYING SEWAGE, PARTICULARLY SEWAGE CONTAMINATED WITH DETERGENTS

Karl Marschall, 317 Zenogame, Vienna, Austria

Division of Ser. No. 96,246, Dec. 8, 1970, Pat. No. 3,733,268. This application June 30, 1972, Ser. No. 268,203
Int. Cl. C02b *1/38*
U.S. Cl. 210—108 9 Claims



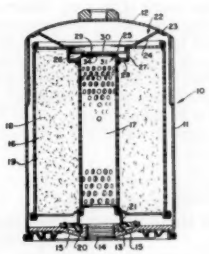
The sewage purification apparatus includes an ozonizing container in which the sewage is recirculated and purified by contact with ozine at substantially atmospheric pressure after passing through a separator container where oil, grease, fat, and solvents are separated and a reaction container where dirt and colloidal matter sedimented by a flocculating agent, are removed. The purified water withdrawn from the ozonizing container passes through an activated carbon filter where residual ozone in the water is converted into oxygen, and the gasses in the upper portion of the ozonizing container pass through an activated carbon filter where surplus ozone is converted to oxygen before the gasses escape to atmosphere.

3,822,787

FLUID FILTER DEVICE

Robert J. Shaltis, and David Woltjer, both of Hastings, Mich., assignors to Hastings Manufacturing Company, Hastings, Mich.

Continuation-in-part of Ser. No. 206,713, Dec. 10, 1971, Pat. No. 3,722,683. This application May 8, 1972, Ser. No. 250,925
Int. Cl. B01d *35/14, 27/10*
U.S. Cl. 210—132 24 Claims



A housing has a closed end and a closure plate at its other end, the plate being provided with a fluid inlet and a fluid outlet. A filter cartridge is positioned in the housing against a support on the closure plate, the cartridge including a central tubular discharge member which communicates with the fluid outlet. A leaf spring adapter is interposed between the other end of the cartridge and the closed end of the housing to bias the cartridge against the support on the plate. The adapter has a central opening which is normally covered by a spring-pressed valve element, but the valve element is deflectable

from the adapter to uncover the opening by excessive fluid pressure differential between the outside of the cartridge and the inside of the discharge member. In some embodiments the valve element is imperforate and normally closes the opening in the adapter, becoming open when flow through the cartridge is blocked. In another embodiment the valve element has an opening in register with that in the adapter and the opening in the valve element is covered by a screen which constitutes a secondary filtering medium additional to the primary filtering medium afforded by the cartridge. In that embodiment the valve element becomes open when the screen is blocked, as it does in still other embodiments where the valve element may be the screen itself.

3,822,788

SEWAGE FLOCCULATING AND SEDIMENTATION TANK UNIT

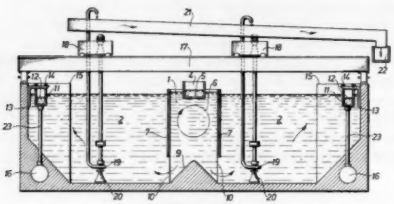
Karl Ragnar Dunkers, Taby, and Jarl Harald Johansson, Alvsjo, both of Sweden, assignors to Johnson Construction Company AB, Solna, Sweden

Filed Oct. 24, 1972, Ser. No. 299,947

Claims priority, application Sweden, Nov. 1, 1971, 13.902/71

Int. Cl. C02b *1/20*

U.S. Cl. 210—200 **9 Claims**



A rectangular tank for purifying domestic sewage and industrial sewage is disclosed. The tank comprises a flocculating section extending the length of the tank for introducing sewage therein, a sedimentation section in fluid communication with the flocculating section including an outlet weir at the upper portion of the sedimentation section. A plurality of compartments are formed in both the flocculating and sedimentation sections to substantially uniformly distribute the incoming sewage the length of the tank. Outlet means at the bottom of each of the flocculating sections opens into the sedimentation section to guide the sewage from the flocculating section in a direction substantially perpendicular to the longitudinal axis of the tank and upwardly towards the outlet weir for discharge as clarified water. Means for agitating the incoming sewage is provided in each of the flocculating compartments. The deposited sludge is collected and transported by a suction device.

3,822,789

OIL SKIMMER MODULE WITH FREE FLOATING WEIR TROUGH

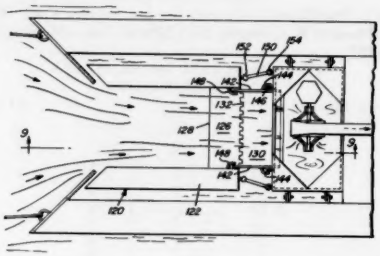
Angelo J. Crisafulli, Box 1051, Glendive, Mont. 59330

Continuation-in-part of Ser. No. 142,282, May 11, 1971, Pat. No. 3,756,414. This application Feb. 6, 1973, Ser. No. 330,079

Int. Cl. E02b *15/04*

U.S. Cl. 210—242 **3 Claims**

A skimmer for removal of a layer of oil or other floating pollutants from the surface of a body of water incorporating a sump box having a pump disposed therein for conveying material from the sump box into a floating barge, vessel or other area. A free floating weir forming means is disposed forwardly of the sump box and connected and communicated therewith in such a manner that the weir forming means may vary in elevational relation to the sump box without the sump box being elevationally varied in relation to the surface of the water. The weir forming means is supported by float means which orients the weir of the weir forming means in desired relationship to the surface of the water.



3,822,790

TOOL-HOLDING DEVICES

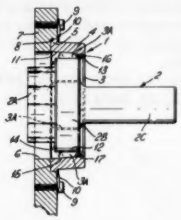
Richard Rodney Armour, and Anthony James Thomas Evans, both of London, England, assignors to Molins Limited, London, England

Filed Sept. 5, 1972, Ser. No. 286,101

Claims priority, application Great Britain, Sept. 9, 1971, 42211/71

Int. Cl. B23q *3/157*

U.S. Cl. 211—60 T **5 Claims**



A tool-holder has a housing with an inner tapered bore in which a correspondingly tapered resilient collet is axially movable, the tool being gripped inside the collet. Axial movement of the collet is limited by a bead on the housing bore fitting loosely in a groove in the collet. When the tool is inserted in the tool-holder the collet is moved towards the wider part of the bore, allowing easy insertion, but withdrawal of the tool causes movement in the opposite direction, producing a limited increase in the grip on the tool.

3,822,791

MOBILE CRANE

Peter Eiler, Dusseldorf-Benrath, Germany, assignor to Gottwald Leo K. G., Dusseldorf, Germany

Filed Aug. 7, 1972, Ser. No. 278,204

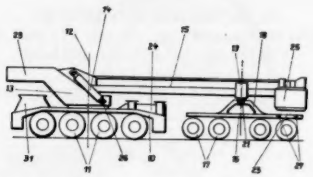
Claims priority, application Germany, Aug. 11, 1971, 2140233

Int. Cl. B66c *23/72*

U.S. Cl. 212—49 **10 Claims**

A mobile crane comprises a multi-axle chassis carrying a slewing frame with a luffing jib mounted on the frame. There is also a single or multi-axle trailer having, between its axles, or above its single axle when there is only one, a device for supporting a counterweight and also for supporting the jib

when the jib is in a lower travelling position. Means are provided for supporting the counterweight from the peak of the jib behind the supporting device on the trailer when the jib is in its lowered travelling position so that the jib acts as a lever



pivoted on the trailer and the counterweight applies a lifting force to the chassis through the slewing frame so that the axle loads of the chassis are decreased and the axle load or loads of the trailer are increased.

3,822,792

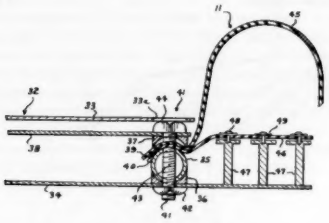
AIR FLOTATION CARGO HANDLING SYSTEM

Joseph L. Weingarten, Kettering, Ohio, assignor to The United States of America as represented by the Secretary of the United States Air Force, Washington, D.C.

Filed Nov. 28, 1972, Ser. No. 310,037

Int. Cl. B60r *3/04*

U.S. Cl. 214—1 BE **5 Claims**



A cargo handling system including a flexible trunk means normally positioned in a relatively flat, uninflated manner on the floor of a cargo aircraft, and inflatable to a cargo supporting position above the level of the floor by the action of compressed air or other gas admitted thereinto. Air passages incorporated in the trunk means automatically transmit the pressurized air or other gas therethrough to form a thin layer-air cushion providing for the floating support thereon of one or more cargo carrying-containers or pallets.

3,822,793

APPARATUS FOR STACKING FLEXIBLE SHEETS

Rudolph Stobb, Bethlehem, Pa., assignor to Stobb Development Corporation, Inc.

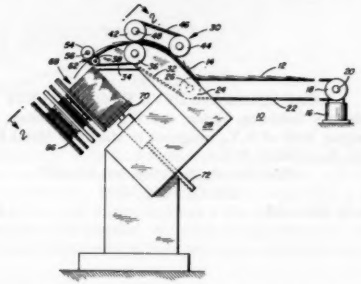
Filed Apr. 14, 1972, Ser. No. 243,981

Int. Cl. B65g *57/14*

U.S. Cl. 214—6 H **11 Claims**

Apparatus and methods for stacking flexible sheets, including signatures of magazines, books, newspapers and the like: A stream of overlapped signatures, continuously transported toward the left along a horizontal path from an initial location to a second location, is then intermittently fed about an inclined path from the second location at an inclined angle upward toward the left and about an arcuate path and downward to the left at an angle of 45° with the horizontal to feed the overlapped signatures, serially, to a V shaped input bin. The input bin has a first movable wall and a second wall, whereby the leading edge of each of the signatures abut against the second wall and wherein each of the signatures fed into the input bin operate to form a stack therewithin with the bottom surface of the bottommost signature resting on first wall, and the other signatures aligned in a stack thereabove with the leading edges of each of the stacked signatures resting against the second wall. The overlapped signatures are fed, at an average surface speed, until the input bin is full. The feeding is then halted to enable the input bin to be unloaded. The transporting and feeding operation are so performed with the input bin that an imaginary point on one of the signatures travels in a first locus lying in a single plane.

Similarly, an output bin, including a V shaped trough having a first wall and a second wall, and a third bin, intermediate the



two bins, including a V shaped trough having a movable first wall and a second wall, are provided. The third bin further includes a fixed ceiling opposed to its first wall. A conveying means is coupled to each of the second walls of the three bins, which second walls are likewise movable. The second bin, the intermediate third bin, the output bin, and a conveying means are so oriented that the aforesaid imaginary point on one of the signatures travels in a second locus lying wholly in a plane perpendicular to the single plane. A stack of signatures, formed in the input bin, is indexed to the third bin, wherein they are compressed by the action of the first wall moving up against the compression ceiling, and, later, a compressed stack of signatures in the third bin is transported to the output bin, whereupon such compressed stack of signatures can be unloaded manually or by other suitable means.

3,822,794

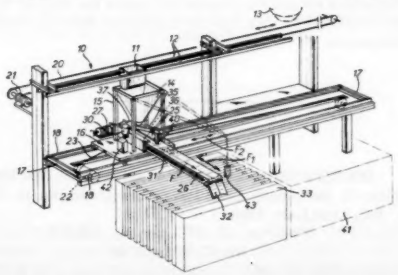
PLANT FOR FILLING MOLDING CAVITIES ARRANGED IN ONE OR MORE BAYS

Edouard Marie Fougea, Paris, France, assignor to Constructions Edmond Coignet S.A., Paris, France

Filed Nov. 3, 1972, Ser. No. 303,599

Int. Cl. B65g *65/32*

U.S. Cl. 214—59 A **7 Claims**



A plant for filing molding cavities arranged in one or more bays. The plant comprises a framework of beams, a bucket

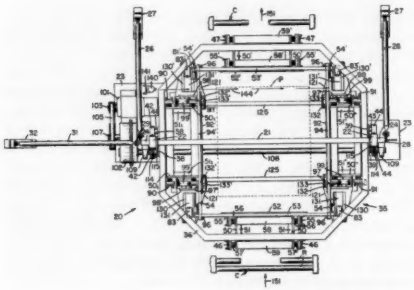
mounted on the framework for horizontal displacement between a cement mixer station and a hopper. The hopper is mounted on a carriage which is displaceable in the same direction as the bucket. A conveyor is mounted on the carriage in alignment with the hopper for delivering concrete from the hopper to the molding cavities. The conveyor extends in a direction perpendicular to the direction of movement of the carriage. The entire conveyor assembly is displaceable along its own longitudinal axis between positions corresponding to the various molding cavities. The downstream end of the conveyor is fitted with a chute for directing concrete into a particular molding cavity. The operator may control the various elements such as the bucket, conveyor and carriage either from a console on the carriage or a control panel situated in the vicinity of the downstream end of the conveyor.

3,822,795

LOAD SQUARING DEVICE FOR PALLETS

Frederic S. Salsburg, Victor, and Weston R. Loomer, Canandaigua, both of N.Y., assignors to Hartman Metal Fabricators, Inc., Victor, N.Y.

Filed Dec. 8, 1972, Ser. No. 313,607
Int. Cl. B65g *57/00*
U.S. Cl. 214—6 S **14 Claims**



Four panels are mounted at the front and back and at the two sides, respectively, of a carriage which is reciprocable vertically above a conveyor. When a loaded pallet has been brought beneath the carriage, the carriage descends; as it descends, curved, stationary cams mounted adjacent the conveyor engage rollers on the lower edges of the panels to urge the panels inwardly to engage and square the load on the pallet. The carriage then rises to inoperative position, retracting the panels.

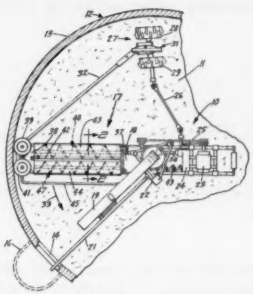
3,822,796

DIFFERENTIAL AUGER MATERIAL COLLECTOR

Floyd E. Buschbom, Long Lake, Minn., assignor to VEDA, Inc., Long Lake, Minn.

Filed Nov. 24, 1972, Ser. No. 309,520
Int. Cl. B65g *65/46*
U.S. Cl. 214—17 DB **16 Claims**

A surface or top silo unloader of the type having leading and trailing counter-rotating augers for gathering material to the center of the silo and delivering it to an impeller which discharges the material from the silo. The trailing auger has a



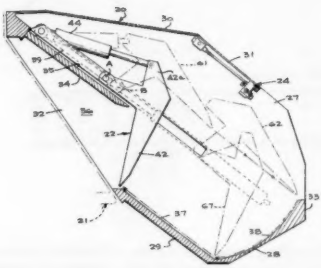
diameter greater than the leading auger and operates at a slower rate of speed. The augers have outwardly projected knives for cutting the material.

3,822,797

CONTROL VALVE OPERATING MECHANISM

Roland W. McKenzie, and Richard Stansberry, both of Culpeper, Va., assignors to City Tank Corporation, Culpeper, Va.

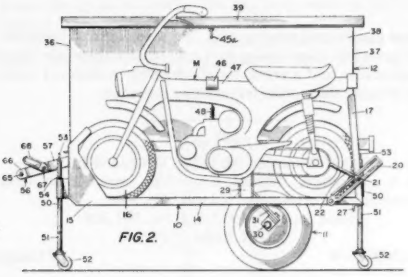
Filed June 23, 1972, Ser. No. 265,710
Int. Cl. B65f *3/00*
U.S. Cl. 214—83.3 **16 Claims**



A mechanism for operating a control valve mounted on a support structure and provided with slideable spools, generally including a first control rod mounted on the support structure for rectilinear motion along its axis, a second control rod mounted on the support structure for pivotal movement about its axis, a third control rod mounted on the support structure for pivotal movement about its axis, means operatively connected to the first and second control rods for independently moving the first control rod rectilinearly along its axis and pivoting the second control rod about its axis, means operatively connected to the third control rod for pivoting the third control rod about its axis, means operatively interconnecting the first control rod and a first valve spool for translating the rectilinear movement of the first control rod to rectilinear movement of the first valve spool, means operatively connecting the second control rod to a second valve spool for translating the pivotal movement of the second control rod to rectilinear movement of a second valve spool, means for pivoting the third control rod, means operatively interconnecting the third control rod with a third valve spool for translating the pivotal movement of the third control rod to rectilinear movement of the third valve spool, and means interconnecting the second and third control rods for trans-

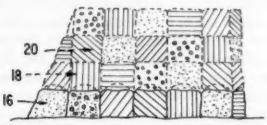
mitting pivotal movement of the second control rod to the third control rod in only one direction and transmitting pivotal movement of said third control rod to said second control rod in only an opposite direction.

3,822,798
TRAILER FOR MOTORCYCLES
Wayne W. Neff, 679 Vine Ave. NE, Warren, Ohio 44482
Filed Dec. 13, 1972, Ser. No. 314,859
Int. Cl. B60p *3/06*
U.S. Cl. 214—85 **9 Claims**



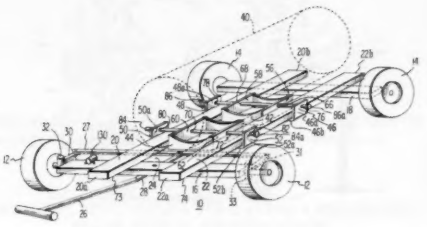
A trailer to be towed by a draft vehicle, such as an automobile. The trailer comprises a frame having wheel means depending therefrom and adapted to roll along a roadway. A container is supported on the frame and is adapted to contain camping gear, parts, tools and the like. Tracks are carried by the frame and disposed on opposite sides of the container, each track being aligned with the towed direction of the trailer and adapted to receive the front and back wheels of a motorcycle. The forward end of each track has a stirrup for receiving the front wheel of a motorcycle, and the rear end of each track has a ramp portion that may be swung to an upright position to abut against the rear wheel of the motorcycle.

3,822,799
METHOD OF PRODUCING BLAST FURNACE SLAG PRODUCTS
Raymond H. Evans, Yardley, Pa., assignor to The Calumite Company, Trenton, N.J.
Filed Jan. 7, 1972, Ser. No. 216,000
Int. Cl. B65g *3/02, 65/28;* **C03c** *13/00*
U.S. Cl. 214—152 **5 Claims**



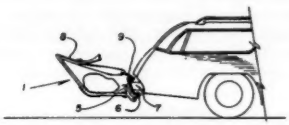
A blast furnace slag product adapted for use in the manufacture of glass is produced by depositing successive loads of slag each having a composition within a predetermined range, in spaced locations within a storage area so as to produce a layer composed of numerous individual loads each differing more or less in composition within said range. Several such layers are arranged one upon another after which the material required for use is removed from the storage area in a direction transverse to said layers and the material thus removed is ground and subjected to magnetic separation whreby a product of highly uniform composition is obtained.

3,822,800
APPARATUS FOR TRANSPORTING TRANSFORMERS AND THE LIKE
Stanley Leszczynski, Elk Creek Rd., Schenevus, N.Y. 12155
Filed Nov. 4, 1971, Ser. No. 195,592
Int. Cl. B62b *3/08*
U.S. Cl. 214—370 **11 Claims**



An apparatus suitable for transporting a relatively large body, e.g., an electrical transformer, that includes one or more projections thereon, including a structure comprising a plurality of wheels and means defining a slot adapted to receive the projection therewithin, the body being removably connectable to the apparatus at the projection or projections.

3,822,801
VEHICLE RACK
William A. Morgan, Jr., 1820 N. Main Ext., Butler, Pa. 16001
Filed Nov. 17, 1972, Ser. No. 307,482
Int. Cl. B60i *9/00*
U.S. Cl. 214—450 **3 Claims**

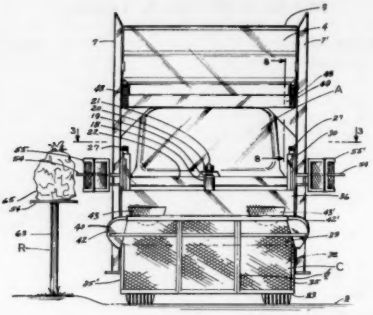


A rack for loading and transporting an article, such as an animal carcass, which can be mounted on a vehicle bumper. The rack includes a tubular frame and tubular cross-members bent in a V-shape forming two sections. Adjustable flexible straps connect opposite edges of the frame sections to a bumper permitting it to be raised from a ground-contacting loading position to an article transporting position.

3,822,802
REFUSE COLLECTOR
Eugene Evans, Jr., No. 1 Tamzine Ct., St. Louis, Mo. 63033
Filed May 5, 1972, Ser. No. 250,591
Int. Cl. B65f *3/04*
U.S. Cl. 214—518 **10 Claims**

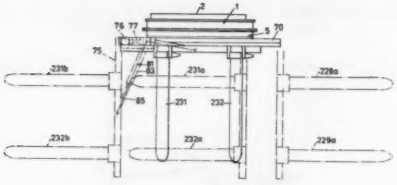
A refuse collector for disposition upon the front end of vehicles comprising an upwardly opening collection basket, means for elevating said basket and rocking same for discharge of the contents thereof into a hopper located in the upper portion of

said vehicle and means for returning the basket downwardly into operative position after discharge. Arms swingable



through lateral arcs are provided adjacent each side of the basket for engaging prepositioned refuse or trash for directing same into said basket.

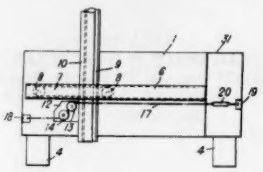
3,822,803
MATERIAL HANDLING EQUIPMENT
Richard Davis Thompson, Leeds, England, assignor to R. E. Barker & Co., Yorkshire, England
Filed Mar. 22, 1973, Ser. No. 343,941
Int. Cl. B66f *9/14, 9/16*
U.S. Cl. 214—620 **10 Claims**



An attachment for a lifting vehicle, comprising a rear frame having means for attachment to a vehicle, a mid-frame rotatably mounted on the rear frame for rotation relative thereto about an axis substantially perpendicular to the plane of the rear frame, a front plate hinged at one side thereof to the mid-frame, means for opening and closing the hinge to pivot the front plate away from and towards the mid-frame, means for moving the hinge longitudinally of the mid-frame from side to side thereof and mounting means at both opposite longitudinal edges of the front plate to which material handling members may be attached.

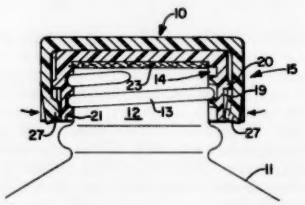
3,822,804
SIDE LOADERS
George Neville Bowman-Shaw, Toddington, England, assignor to Lancer Boss Limited, Bedfordshire, England
Continuation of Ser. No. 111,588, Feb. 1, 1971, abandoned. This application May 21, 1973, Ser. No. 362,547
Int. Cl. B66f *9/10*
U.S. Cl. 214—670 **5 Claims**

For a side loader vehicle having a transverse recess between front and rear body portions with mast guides adjacent to the recess, a mast traversing mechanism comprising at each side of the recess a mast-trolley moving along the guide, a shaft journalled in the mast-trolley assembly and extending across the mast, a first sprocket fast with the shaft, a second sprocket rotatably mounted on each side of the mast in alignment with the first sprocket, a chain anchored at its extremities to the



vehicle chassis and passing over one sprocket and under the other sprocket, a tensioning device to tension the chain round the sprockets, and a prime mover drivingly connected to the shaft to cause the mast to travel along the recess.

3,822,805
SAFETY CLOSURE FOR CONTAINERS
Paul A. Marchant, Kansas City, Mo., assignor to Ethyl Development Corporation, Kansas City, Mo.
Filed Sept. 22, 1972, Ser. No. 291,329
Int. Cl. B65d *55/02*
U.S. Cl. 215—9 **7 Claims**



A safety closure for containers having a threaded neck, which closure includes an inner closure adapted to be threadably received on the container neck and an outer or overclosure covering, and normally freely rotatable on, the inner closure. The inner closure is provided with continuous engaging means around the lower portion of its skirt, which means are engageable by means provided on two downwardly projecting flexible tabs provided in the lower portion of the skirt of the overclosure. Application of pressure between the thumb and finger compresses the tabs of the outer closure to engage the inner closure, thereby permitting rotation of the locked inner and outer closures to remove the safety closure from the neck of the container.

A second embodiment includes a plurality of integrally formed projections on both the top surface of the inner closure and on the bottom surface of the outer closure. The projections are adapted to engage to rotate the inner closure when the outer closure is rotated to attach the safety closure to the container and to disengage when the outer closure is rotated to detach the safety closure without pressing the tabs to lock the outer closure into engagement with the inner closure.

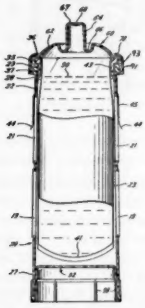
3,822,806
INFANT FEEDING MEANS
Gary S. Grimes, Kent, Ohio, assignor to Quester Corporation, Toledo, Ohio
Division of Ser. No. 201,723, Nov. 24, 1971, Pat. No. 3,762,542. This application Apr. 9, 1973, Ser. No. 349,105
Int. Cl. A61j *9/04*
U.S. Cl. 215—11 E **3 Claims**

A nurser includes a presterilized disposable bag of thin, flexible, elastic, waterproof material, such as polyethylene, sup-

ported inside a rigid, tubular holder having slotted sides or an open bottom or both. The holder converges slightly from one end to the other. Adjacent the latter end the holder is reentrant, forming an external annular channel, and forming a radially extending flange at the lip of the opening at that end. The open end of the bag is turned back over the lip and pulled over and beyond the annular channel and down tight around the tapered body of the holder.

A sterilized nipple has a flange at its base and an elastic band integral with the outer periphery of the flange. The nipple flange is sealed to the bag at the lip of the holder and the nipple and bag are secured to the holder by snapping the elastic band around the holder into the annular channel adjacent the lip of the holder, the bag lying between and being gripped by the holder and the rubber band.

The bag is formed from a continuous tube which, while flattened, has been transversely arcuately perforated and, adjacent and parallel to the perforations, transversely arcuately heat sealed, so that a bag torn from a roll of the tube will have an arcuate bottom which does not form ears when filled with liquid and an arcuate top which provides tabs facilitating folding the top back over the holder and pulling it tight upon its tapered body, thereby to effect sanitary assembly.



The bag has an outer diameter closing fitting the inner periphery of the holder below the reentrant portion and only slightly smaller than the outer diameter of the lip and upper part of the holder adjacent the channel, whereby with the aid of the tabs it can easily be manually pulled down over the lip, channel, and upper part of te tapered holder, frictionally elastically engaging therewith.

The extra length of the bag required to extend down beyond the channel provides sufficient length to permit use of the bag also in narrow mouth holders provided with screw cap type nipple and bag retention means.

3,822,807

CLOSEABLE CONTAINERS HAVING MEANS FOR SUPPRESSING FIRE AND/OR EXPLOSIONS

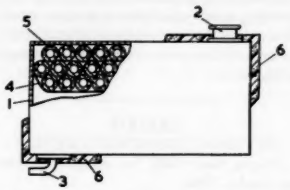
John Angus MacDonald, Farnborough, and Harold William Gerald Wyeth, Aldershot, both of England, assignors to The Secretary for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Mar. 13, 1972, Ser. No. 233,993

Int. Cl. B65d *25/00*

U.S. Cl. 220—88 R **9 Claims**

A closeable container having therein a plurality of foam balls having a porosity of 15–25 pores per linear inch, which balls together with the void spaces therein occupy the space within the container to an extent that there is left externally of the balls and within the container a volume equivalent to more than 50 per cent of the total interior space within the container, so that in the event of a fire within the container an unacceptable pressure rise therein may be prevented.



3,822,808

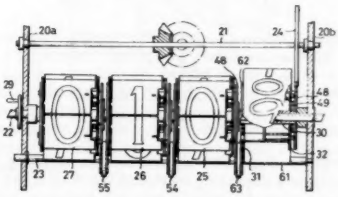
FUEL SUPPLYING APPARATUS HAVING A REVERSIBLE PLATE TYPE FLOW INDICATOR

Shiro Katakura, Tokyo, and Shinichi Nojima, Yamanashi, both of Japan, assignors to Tokico Ltd., Kanagowa-ken, Japan

Filed Mar. 20, 1973, Ser. No. 343,118

Int. Cl. B67d *5/26*

U.S. Cl. 222—33 **6 Claims**



A fuel supplying apparatus comprises a flowmeter and a reversible plate type flow indicator. The reversible plate type flow indicator includes shift means of a decimal system actuated in a mechanical manner and resetting means for zero-resetting the indication. This reversible plate type flow indicator is preferably provided in a stationary stand post secured to an island in a servicing area of a fuel supplying station.

3,822,809

LOOSE PRODUCT METERING APPARATUS

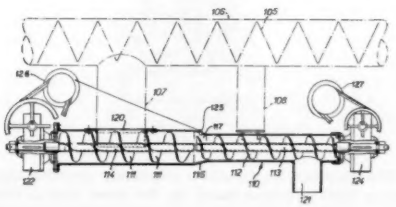
Pierre A. Foucault, 12 Avenue du General de Gaulle, 78 Croissy S/Seine, and Jacques P. M. Pellerin, 57 Boulevard de la Republique, 91 Soisy S/Seine, both of France

Filed Feb. 8, 1973, Ser. No. 330,745

Claims priority, application France, Dec. 18, 1972, 72.44967

Int. Cl. B67d *5/16*

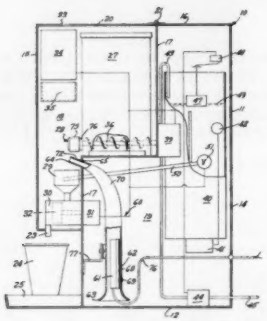
U.S. Cl. 222—71 **9 Claims**



Apparatus for metering loose products such as powder or granules, comprises co-axial metering and compensating

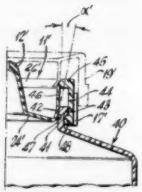
worms rotatable in a casing from which the metering worm delivers product into a delivery tube. The worms are independently driven and servo-control means dependent on the torque of the metering worm controls the rate of rotation of the compensating worm which feeds product to the metering worm. By this means the amount of product distributed by the metering screw is strictly proportioned to the speed of rotation of the metering screw.

3,822,810
BEVERAGE DISPENSING DEVICE
Norman L. Fuqua, South Hill, Va., assignor to The Cornelius Company, Anoka, Minn.
Filed Jan. 17, 1972, Ser. No. 218,399
Int. Cl. B67d *5/62*
U.S. Cl. 222—146 HE **12 Claims**



A beverage dispensing device for dispensing a stored beverage from a dispensing section of the device, the device having associated therewith means for providing a flow of warm air to the dispensing section via a conduit from a heater element positioned exterior of the dispensing section, the supply relying upon convective flow independent of fans, blowers or the like.

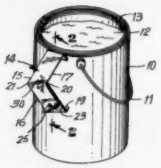
3,822,811
SAFETY CLOSURE
William James Landen, Cheshire, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.
Filed Apr. 10, 1972, Ser. No. 242,335
Int. Cl. B67d *3/00*
U.S. Cl. 222—562 **16 Claims**



The invention contemplates selectively openable closure means that is tamper-proof, in the sense that a correct sequence of two deliberate and independent movements of two parts is necessary in order to achieve access to the contents of the bottle or the like container which is protected by the closure.

The invention is particularly concerned with protection of containers for liquid, such as oil, lighter fluid, etc. and having a dispensing nozzle. The nature of the inventive closure is such as to close and seal the nozzle, and to protect against loss of or access to dripped liquid around the nozzle, as well as to achieve the tamper-proof or safety locking feature.

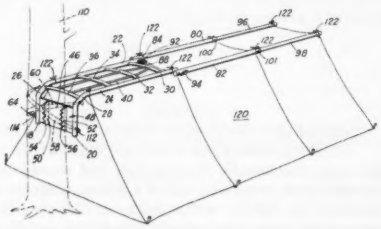
3,822,812
POURING ATTACHMENT FOR PAINT CANS
Joseph E. Shorin, New York, N.Y., and Vero Ricci, Collingswood, N.J., assignors to Aggogle Inc., New York, N.Y.
Filed July 27, 1973, Ser. No. 383,135
Int. Cl. B65d *5/74*
U.S. Cl. 222—570 **5 Claims**



The present invention is directed to an improved paint can pouring attachment adapted to facilitate the predictable pouring of paint, with reduced likelihood of spillage and leakage along the edge of the paint can, the apparatus functioning, in addition, to prevent the entry of paint into the rim of the paint can, thereby assuring that the lid of the paint can may be reapplied without compromising the seal afforded thereby.

The apparatus is characterized by a body portion having a pressure sensitive adhesive backing, the body portion being chevron-shaped, the depth of the chevron being substantially greater than the horizontal dimension of the rim of the paint can, whereby when the pouring device is mounted by adhesive attachment over the said rim, the trailing edge of the chevron will overlie the interior of the can and the leading edge of the chevron will extend beyond the rim.

3,822,813
BACK PACK FRAME FOR SUPPORTING A TENT
Stephen D. Carter, 1238 Renee Dr., Lilburn, Ga. 30247
Filed Mar. 19, 1973, Ser. No. 342,417
Int. Cl. A45f *3/10, 4/04*
U.S. Cl. 224—25 A **7 Claims**



A back pack is convertible into a tent support frame and includes a pair of spaced parallel L-shaped frame members. A gripping structure including saw-toothed projections is supported between a first pair of legs of the frame members and serves, in conjunction with straps secured to the frame members, so secure the back frame to an upright support member, such as a tree. The second legs of the upright frame members

are extendable by providing extension frame members pivoted to the second legs of the L-shaped frame members and additional frame members telescoped within the extension frame members. In this way, the back pack may be secured to an upright support, such as a tree, and the second legs of the extension frame members may be extended to form a tent support frame.

3,822,814

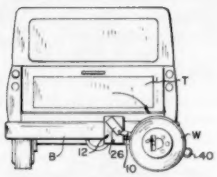
BUMPER MOUNTED SPARE WHEEL CARRIER

Nick A. Baldi, 36 Genie Way, Longmont, Colo. 95240

Filed Apr. 26, 1973, Ser. No. 354,740

Int. Cl. B62d *43/02*

U.S. Cl. 224—42.06 **1 Claim**



A bumper mounted spare wheel carrier for pickup trucks or other vehicles for normally supporting a spare wheel in a generally vertical position behind and primarily above the bumper and swingable about a horizontal axis to a position where the wheel rests upon the ground to permit opening of a tailgate or door blocked by the wheel in its normal position. An elongate arm is pivotally mounted at one end upon a mounting bracket adapted to be attached to the bumper of a vehicle. An inclined armrest fixedly mounted on the bracket establishes a normal rest position of the arm in which the arm is inclined upwardly to one side of its point of pivotal attachment to the mounting bracket. Spare wheel mounting means are located upon the arm approximately midway of the length of the arm, the arm being of a length such that the end of the arm remote from the pivot projects radially beyond the periphery of a wheel mounted upon the wheel mounting means. A latch is provided for latching the arm in its normal wheel carrying position against the armrest, the latch including a latch actuator accessible at the remote or outer end of the arm. A lock assembly for locking the wheel in place on the carrier includes an angle member of "L"-shaped transverse cross-section having a stud receiving bore through one web by means of which the angle member is clamped against the wheel by the wheel retaining nut on the stud. A retainer member of sheet metal or similar material is formed with a closed loop dimensioned to loosely surround the nut, while a tangentially projecting arm portion integral with the loop lies against the other web of the angle member. Aligned bores through the arm portion and other web of the angle member provide a means whereby the retainer member may be padlocked to the angle member, the loop portion surrounding the nut and prohibiting access to the nut flats thereby to prevent removal of the nut without first removing the retainer member.

3,822,815

BUILDING FRAME FABRICATING MACHINE

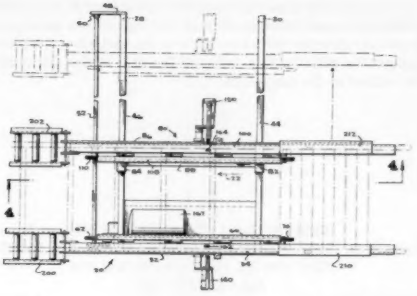
Jack Davis, Bristol, Tenn., assignor to Davis Building Systems, Ltd., Bristol, Tenn.

Continuation-in-part of Ser. No. 215,824, Jan. 6, 1972, Pat. No. 3,765,587, which is a continuation-in-part of Ser. No. 110,196, Jan. 27, 1971, abandoned. This application Mar. 21, 1973, Ser. No. 343,485

Int. Cl. B27f *7/02*

U.S. Cl. 227—7 **19 Claims**

A frame fabricating machine is disclosed including a fixed frame having transverse support beams on which a carriage is transversely adjustable. Stationary guide rails on a fixed portion of the frame and adjustable guide rails on the carriage support longitudinal frame members for axial movement through the machine with two conveyor chains having pivotal lugs on upper horizontal flights engaging transverse spreaders perpendicularly oriented between the longitudinal frame members to move the spreaders and longitudinal members past nailing means on opposite sides of the frame which are actuated by two air valve sensors to detect a properly positioned spreader aligned with the nailing means. The pivot lugs on the chains pivot downwardly out of engagement with the frame members under cam control as they reach a position near the end of the upper flight of each chain. Transverse adjustment of the carriage adjusts one guide rail and one conveyor chain for accommodating different width frame constructions. Outfeed conveyors are provided for removing the completed frame.



3,822,816

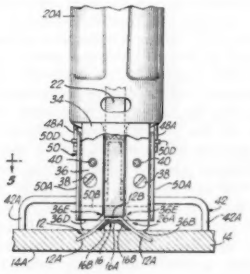
APPARATUS FOR DRIVING STAPLES

Richard H. Doyle, 104 S. Albert St., Mount Prospect, Ill. 60056

Filed Apr. 17, 1972, Ser. No. 244,746

Int. Cl. B25c *5/02*

U.S. Cl. 227—83 **10 Claims**



An apparatus for fastening metal studs to drywall panels use staples driven against anvil surfaces formed integral with the

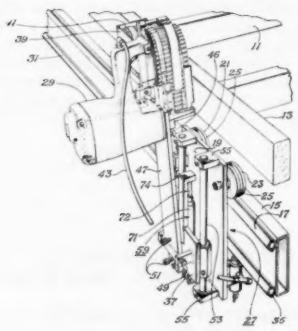
metal studs so that the staple crowns overlie the studs with the legs curled into the drywall panels from the backside. Since staples are driven from the back of the panel and do not project through the other side, the usual need for covering the fasteners or their heads is avoided. The nosepiece of the staple driving tool is recessed to accept the metal stud, and the drive track in which the staple driver is reciprocated is outwardly open or flared adjacent the received stud to control the curling of the staple legs within the panel. The tool is provided with stabilizers to insure balanced penetration of the workpiece by the staple legs, and the relative positions of the anvil surfaces on the stud and the various portions of the drive track are controlled in dependence on the staple used so as to obtain predictable controlled curling of the legs within the drywall panel. A safety prevents operation of the tool when it is placed against the panel unless and until the stud is also disposed in the recess in the nosepiece.

3,822,817

SEMI-AUTOMATIC GUN MOUNT

Kennith D. Umphress, 2751 Ludell, Fort Worth, Tex. 76105

Filed May 22, 1972, Ser. No. 255,414
Int. Cl. B25c *7/00*
U.S. Cl. 227—110 **8 Claims**



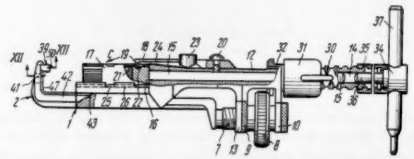
A semi-automatic gun mount allowing an operator to fasten together respective members to form a plurality of lineally spaced joints, characterized by at least one rail, referred to as a monorail, disposed adjacent the location where the lineally spaced joints will be formed; a carriage guidably supported on the monorail with minimal lateral extension; a first means, such as spaced apart wheels gripping the monorail and a vertically disposed rail, for facilitating movement of the carriage longitudinally of the monorail with minimal friction, for retaining the carriage on the monorail with sufficient force to carry a cantilevered gun and for facilitating removal and installation of the carriage and its gun from and onto the monorail; vertically movable support plate on the carriage for supporting the gun; stop for limiting vertical movement of the support plate; and adjustable biasing means yieldingly urging the support plate upwardly into its uppermost position in engagement with the stop. The support plate is movable downwardly by an operator against the force of the adjustable biasing means to position the gun in a plurality of vertically spaced nailing positions adjacent each joint. Also disclosed are specific preferred embodiments.

3,822,818

SURGICAL INSTRUMENT FOR JOINING OSSEOUS TISSUES BY STAPLES

Alexei Alexeevich Strekopytov; Tatyana Andreevna Strekopytova, both of ul. Vsevoloda Vishnevskaga 10, kv. 67; Lev Konstantinovich Bogush, ul. Lizy Chaikinoi, 5, kv. 189, all of Moscow; Georgy Sergeevich Kuklin, ul. Kirova, 50, kv. 67, Kolomna Moskovskoi oblasti; Naum Aronovich Super-Fainshtein, ul. Bashilovskaya 10, kv. 8, Moscow, all of U.S.S.R.; Viktor Sergeevich Severov, deceased, late of 6 kilometr Severhoi Zheleznoi dorogi, korpus 2, kv. 17, Moscow, U.S.S.R. (by Ljudmila Mikhailovna Efimova); Sergei Ivanovich Severov, and Zinaida Pavlovna Severova, both of 2 mikroraion, 37, Egorievsk Moskovskoi oblasti, U.S.S.R. (heirs)

Continuation-in-part of Ser. No. 333,463, Feb. 20, 1973, abandoned, Continuation of Ser. No. 117,981, Feb. 23, 1971, abandoned. This application June 6, 1973, Ser. No. 367,382
Int. Cl. B25c *5/02*
U.S. Cl. 227—124 **10 Claims**



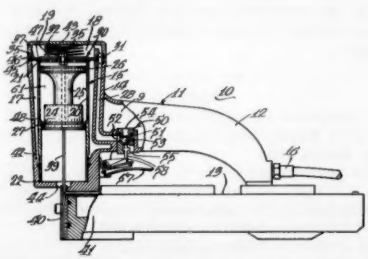
A surgical instrument for joining osseous tissue by V-shaped staples, comprising a bearing stock with a hook carrying a removable dies with depressions for bending staple legs; a staple carrier accomodating a staple magazine, said staple carrier being mounted in the guideways of the bearing stock so as to be moved freely therealong, and a staple ejector mounted in the staple carrier so as to move freely therealong the hook of the bearing stock comprising two component members movable lengthwise relative to each other permitting them to be disposed at different distances from the staple magazine, the dies likewise comprising two portions fixed respective to one of the respective component hook members and serving as bearing surfaces for the respective legs of the staple when the legs are being bent. whereby dimensional variations between osseous tissue being joined is compensated for while the portions and stabilized while being jointed; and the danger from trauma due to protruding sharp staple-edges is minimized.

3,822,819

FASTENER DRIVING TOOL WITH IMPROVED VALVE

Steven J. Wilson, 1936 Orrington, Evanston, Ill. 60201, and Frank C. Howard, 1646 Barberry Ln., Mt. Prospect, both of Ill. 60056

Filed July 10, 1972, Ser. No. 270,189
Int. Cl. B25c *1/04*
U.S. Cl. 227—130 **8 Claims**



A snap-action valve for a fluid motor that includes a cylinder and a piston reciprocably mounted therein. The snap-

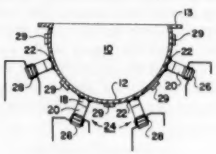
action valve is located at the upper cylinder end and includes a diaphragm supported about its periphery with one surface facing the upper cylinder end and movable between a position spaced from that end and a position adjacent thereto. The diaphragm divides a housing into an upper chamber and a lower chamber, the latter continually provided with pressurized air. A resilient flat disc is secured at its center to the surface of the diaphragm facing the cylinder. A control valve admits pressurized air to the upper chamber to drive down the diaphragm to its cylinder-adjacent position against the force exerted by the pressurized lower chamber to carry the disc into sealing engagement with the cylinder end. After the control valve begins to release the upper chamber air, the pressurized air in the lower chamber moves the diaphragm upwardly away from the cylinder end but initially maintains the disc in sealing engagement with the cylinder. After a predetermined movement of the diaphragm, the disc snaps upwardly against the diaphragm back to its flat configuration to instantaneously provide a large opening at the upper cylinder end thereby minimizing the pressure drop of the high-pressure air being admitted into the cylinder. The pressurized air from the lower chamber upon entering the cylinder then drives down the piston, whereafter the control valve resupplies the upper chamber with pressurized air to again seal off the cylinder in preparation for subsequent cycles.

3,822,820

SONIC AGITATION OF MOLTEN METAL

Nicholaas L. Brouwer, Allegheny Township, Westmoreland County, and David E. Smucker, New Kensington, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Sept. 20, 1973, Ser. No. 398,946
Int. Cl. B23k *1/06*
U.S. Cl. 228—1 **11 Claims**



Simultaneous fluxless joining, tinning and/or coating of components or workpieces is effected by the use of a sonically agitated molten metal bath maintained at a uniform temperature and contained in a vessel comprised of a curved (in cross section), solid, unitary shell. The sonic agitation is provided by multiple arrays of sonic energy transducers disposed about and along the shell, and in energy transfer relationship with the bath via the shell. The arrays of transducers are grouped, and the groups individually energized by sonic power generators each having means for controlling the sonic power output thereof, as well as the sonic frequency, to provide individually controllable zones of sonic energy within the vessel and molten metal bath.

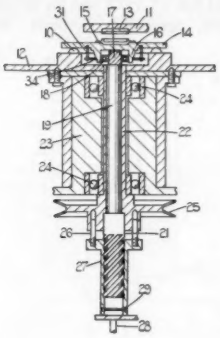
3,822,821

FRICTION WELDING APPARATUS

Donald Bernard Clarke, Birmingham, England, assignor to Joseph Lucus (Electrical) Limited, Birmingham, England

Filed Oct. 2, 1972, Ser. No. 294,297
Claims priority, application Great Britain, Oct. 2, 1971, 45948/71
Int. Cl. B23k *27/00*
U.S. Cl. 228—2 **8 Claims**

Friction welding apparatus includes a support, which, in use, carries a workpiece and a carrier member arranged to receive a component to be friction welded to the workpiece. In use, the component and the workpiece can be pressed against one another and the component can be moved with the carrier member relative to the support to allow the component to be friction welded to the workpiece. A drive member is provided for moving the carrier member relative to the support, the drive member also being capable of rotational movement relative to the carrier member about an axis of the drive member. A first cylindrical shaft is secured to the drive member so that the axis of the shaft is parallel with, but spaced from, the axis of rotation of the drive member. A second cylindrical shaft is mounted around the first shaft so that the axis of the first shaft is parallel with the axis of the second shaft, but is spaced from the axis of the second shaft by a distance equal to



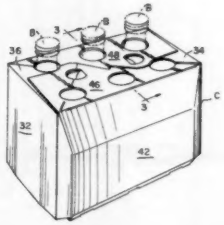
the space in between the axes of the first shaft and the drive member respectively. Drive can be supplied to the second shaft to rotate the second shaft and the first shaft is movable angularly relative to the second shaft between an inoperative position and a welding postion. In the welding position, the axis of the drive member is spaced from the axis of the second shaft so that rotational movement of the second shaft causes the drive member to move the carrier member relative to the support along a circular path centered on the axis of the second shaft. In the inoperative position, the axis of the second shaft and the axis of the drive member are co-extensive so that rotational movement of the second shaft rotates the drive member relative to the carrier member so that the carrier member is not moved relative to the support.

3,822,822

BOTTLE CARRIER

Edwin L. Arneson, Hillsdale, N.J., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Filed Aug. 16, 1972, Ser. No. 280,971
Int. Cl. B65d *5/04, 5/36*
U.S. Cl. 229—40 **13 Claims**



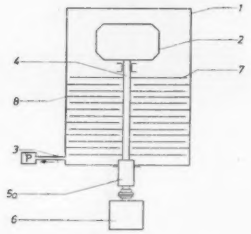
A collapsible carrier for beverage bottles or the like which is formed from a blank of foldable sheet material cut and scored

to provide connected side and end wall forming panels and cooperating top and bottom wall forming panels hinged to the top and bottom edges of the side wall forming panels with the top wall forming panels being connected so as to automatically open up into top wall forming relation when the carrier is opened up for assembly with the bottles and having spaced apertures for accommodating top portions of the bottles, together with finger-receiving holes which are disposed in a plural ply area.

3,822,823
VACUUM CENTRIFUGE

Max Wutz, Wilhelmsbaden Ring 6, Hanau-Hohe Tanne, Germany

Filed Feb. 25, 1972, Ser. No. 229,489
Claims priority, application Germany, Mar. 19, 1971, 2113460
Int. Cl. B04b *15/08*
U.S. Cl. 233—16 **10 Claims**

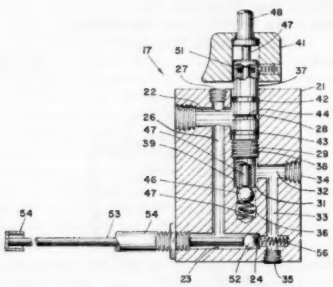


To permit centrifuging in a high vacuum, an airtight housing has a centrifuge container located therein, mounted on a shaft to rotate at high speed. Within the airtigint housing, a plurality of turbine rotor rings are located, connected to the shaft, the space between the turbine rings having interdigited turbine stator rings mounted thereon, so that, upon rotation of the centrifuge, the rotor and stator rings will cooperate to provide a high vacuum in the region of the centrifuging container.

3,822,824
CONTROL VALVE FOR A CATALYTIC HEATER

James N. Recktenwald, 10011 Greenfern Cir., Westminster, Calif. 92683

Filed Jan. 8, 1973, Ser. No. 321,871
Int. Cl. F23n *5/04*
U.S. Cl. 236—102 **1 Claim**

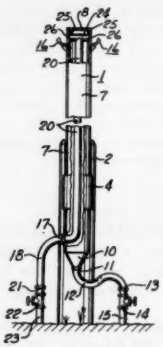


A control valve for a catalytic heater, having a gas inlet and a gas outlet that are connected by two parallel passageways. In one passageway is disposed a thermally activated valve that keeps one passageway open as long as the heater is at an elevated temperature. To start the heater a spring-loaded manual valve is disposed in the other passageway so that when one senses the formation of heat, he releases the manual valve to close the respective passageway, since gas is being supplied to the heater through the first mentioned passageway. In addition means are provided to control the maximum gas flow rate.

3,822,825
SNOW MAKING APPARATUS AND SYSTEM

Herman K. Dupre, c/o Seven Springs, Champion, Pa. 15622

Filed Aug. 8, 1973, Ser. No. 386,528
Int. Cl. F25c *3/04*
U.S. Cl. 239—14 **12 Claims**

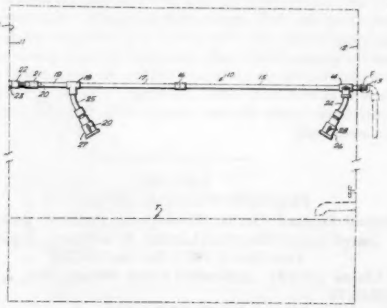


Apparatus and system for making snow in particular for ski slopes in the colder months of the year, wherein there is provided a plurality of vertically extended snow making towers for supplying water and air to a plurality of discharge outlets at the upper or top end of each tower. The main conduit of the tower is for supplying water to the water discharge nozzle outlets adjacent the top of the tower while an air conduit provided for the full length of and within the water conduit provides for the discharge of air above the nozzle outlets, the discharged air being directed into the throat of the discharged water spray.

3,822,826
DUAL SHOWER HEAD ATTACHMENT DEVICE

Mark L. Wilson, 88102 N.E. 25th Pl., Miami, Fla. 33160

Filed Sept. 4, 1973, Ser. No. 394,122
Int. Cl. B05b *15/06*
U.S. Cl. 239—267 **5 Claims**



An attachment device for converting a single shower head personal shower installation or to dual, opposed shower head

installation to provide for showering from each side of the shower enclosure or recess, is described. A rigid conduit pipe, threaded at one end for connection with a shower installation shower water outlet fitting at one end of the shower recess or enclosure in substitution for the usual single shower head arm, is provided along its length with a pair of longitudinally-spaced shower heads and, at its outer end, is provided with adjustable thrust abutment means for frictional engagement with the opposite wall of the shower recess or enclosure in securing the attachment device in place. A control valve in the path of flow to the two shower heads provides for selective control of shower water thereto for independent or dual use in showering.

3,822,827

METHOD OF MODIFYING CLAY PARTICLES

Norman Owen Clark, Tarton, Driving Ln., Par, Cornwall, England

Filed June 20, 1972, Ser. No. 264,433

Claims priority, application Great Britain, June 21, 1971, 29066/71

Int. Cl. B02c *19/00*

U.S. Cl. 241—3 **9 Claims**

A process for modifying the particle size distribution of a fine particulate solid, such as a clay mineral, which process comprises the steps of compacting the fine particulate solid in a substantially dry state under a compressive force of at least 100 atmospheres to form a compacted mass, and thereafter breaking-up the compacted mass to obtain a fine particulate solid having a modified particle size distribution.

3,822,828

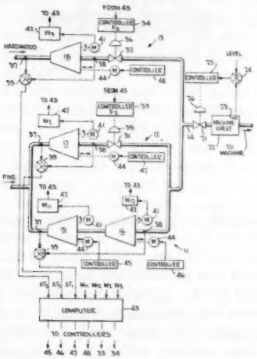
REFINER NETWORK CONTROLLER

David A. Spitz, Columbus, Ohio, assignor to Industrial Nucleonics Corporation, Columbus, Ohio

Filed Mar. 13, 1973, Ser. No. 340,664

Int. Cl. B02c *25/00*

U.S. Cl. 241—33 **7 Claims**



The ratio of refining amongst plural fiber stock refining branches is maintained substantially constant by maintaining a substantially constant, predetermined stock flow ratio amongst the branches and by maintaining substantially constant the ratio of work per unit weight of fibers exerted by the refiners of the plural branches on the fibers. The flow ratio is maintained substantially constant by effectively measuring the flow in each of the branches, responding to the measurements to derive an indication of the flow ratio for each branch relative to the total flow, and comparing the indicated flow ratios with flow ratio setpoints to actuate valves in branches auxiliary to a main branch. The ratio of net work per unit weight of fibers is maintained substantially constant by combining a signal indicative of the flow through each individual branch with a signal indicative of the net power ratio of each branch relative to the main branch to derive an indication of the power to be consumed by the individual branch. The indication of power to be consumed by each branch controls the clearance between cutting members of each refiner of the auxiliary branches.

3,822,829

ROLLER MILL OF THE EDGE RUNNER TYPE

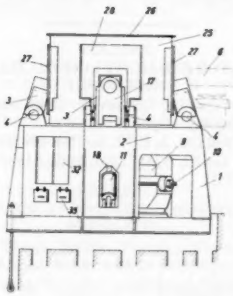
Horst Brundiek, Rubensstrasse 26, 4044 Kaarst, and Ludwig Werner, Schaferstrasse 17, 4000 Dusseldorf, both of Germany

Filed June 5, 1972, Ser. No. 259,823

Claims priority, application Germany, June 6, 1971, 2128929

Int. Cl. B02c *15/14*

U.S. Cl. 241—121 **8 Claims**



A roller mill of the edge runner type comprising a rotary grinding table and pivotally mounted rolls adapted to roll on the material on the grinding table, each roll being individually journalled in a respective box-shaped support which is inherently transportable and the supports are connected by box-shaped intercalated connecting pieces, which with the supports from a ring resistant to torsion.

3,822,830

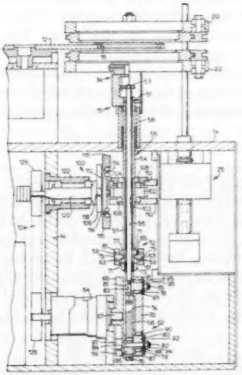
STATOR CORE WINDING MACHINE

Robert W. Peters, 9036 N. 75th, Milwaukee, Wis. 53223

Filed Mar. 30, 1972, Ser. No. 239,569

Int. Cl. H02k *15/085*

U.S. Cl. 242—1.1 R **12 Claims**



A winding head assembly for a stator core winding machine having a turn table for supporting a number of stator cores and

tooling rings for rotating the stator core relative to the turn table, the tooling rings including pivotably mounted fingers positioned between the slots in the stator core, the winding head assembly including a winding head and a spindle drive mechanism, the winding head being supported by the spindle drive mechanism for reciprocating and oscillating movement through the center of the stator core, the winding head includes a needle positioned to move through the slots of the stator core and a cam mounted for movement with and relative to the winding head a distance different than the distance of movement of the winding head, the cam being operatively connected to the needle to move the needle transversely of the winding head through an arcuate path in its movement through the slots of the stator core, the spindle drive mechanism including a dual coaxially mounted spindle, one of the spindles being connected to the winding head and the other connected to the cam, and an offset cam block for simultaneously moving said spindles through strokes of different lengths.

3,822,831

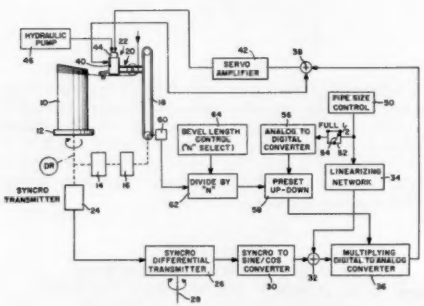
APPARATUS FOR STRAIGHT LINE OSCILLATION OF A WIRE GUIDE

Alfred L. Marcum, Jr., Centerville, Ohio, assignor to Price Brothers Company, Dayton, Ohio

Filed Oct. 3, 1972, Ser. No. 294,624

Int. Cl. B21f *17/00*; **B65h** *81/00*

U.S. Cl. 242—7.21 **8 Claims**



Apparatus for oscillating a wire guide carried by a wire feed carriage which moves axially of a rotating concrete pipe core to apply prestressing wire to the core. The oscillating mechanism includes a four bar pantograph with the wire guide mounted on one end of one link of the pantograph to provide straight line movement of the wire guide parallel to the axis of the core being wrapped as the wire guide is oscillated.

3,822,832

PROCESS AND APPARATUS FOR COMPENSATING THE YARN TENSION DIFFERENCE BETWEEN TWO YARNS ON A SPINDLE DRIVE TYPE WINDING MACHINE

Soichi Torii, 28, Shichiku Kamiumenokicho, Kita-ku, Kyoto-shi, Kyoto, and Hideo Yamamoto, 19, Fukakusa Nishiuracho 7-chome, Fushimi-ku, Kyota-shi, Kyoto, both of Japan

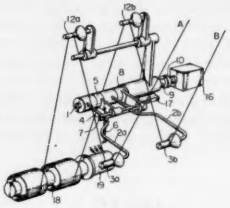
Filed Aug. 10, 1972, Ser. No. 279,454

Claims priority, application Japan, Nov. 27, 1971, 46-111580

Int. Cl. B65h *59/38*

U.S. Cl. 242—45 **16 Claims**

In the spindle drive type winding machine, when yarn tension of one of two side yarns is increased, the compensating of said increased yarn tension can be accomplished by the sequence of braking the spindle firstly by said increased yarn tension so as to reduce the rpm of the spindle, accordingly the



dancer arm for the other yarn lowers its position to speed up the electric torque motor and spindle by elevating the voltage via the angular displacement of an operation arm.

3,822,833

THREAD SUPPLY DEVICE FOR TEXTILE MACHINES

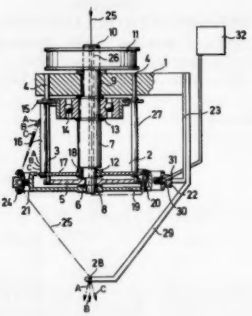
Josef Fecker, Bisingen-Steinhofen, Germany, assignor to Firma Gustav Memminger Verfahrenstechnik fur die Maschenindustrie, Freudenstadt, Germany

Filed Dec. 18, 1972, Ser. No. 316,032

Claims priority, application Germany, Dec. 23, 1971, 2164095

Int. Cl. B65h *51/12*, *51/04*

U.S. Cl. 242—47.12 **9 Claims**



A circular track with a freely running thread guide is provided outside the free end of a stationary winding core. The running guide is pulled around the track by the pull of the unwinding thread and prevents the tension of the thread from being affected by the intermittent operation of the winding eye mechanism mounted inside the track on the free end of the winding core. The latter supplies additional turns as needed to the winding, which provides a certain thread storage between a primary supply and a textile machine.

3,822,834

CABLE TRANSFER APPARATUS

Robin Lent Ibsen Fjartie, Maxville, Ontario, Canada, assignor to Fathom Oceanology Limited, Port Credit, Ontario, Canada

Filed May 17, 1973, Ser. No. 361,319

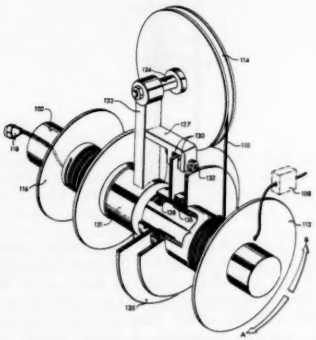
Claims priority, application Canada, June 5, 1972, 143836

Int. Cl. B65h *75/00*

U.S. Cl. 242—54 R **10 Claims**

A cable transfer apparatus for transferring cable from a driven rotatable drum to a static drum, includes a rotatable

arm mounted on the same shaft with the rotatable and static drums, and with a transfer sheave at the outer end of the arm. The transfer sheave is mounted so as to accommodate cable being transferred between the rotatable and static drums. The arm is arranged with driving means therefor so that when the rotatable drum is driven in a first direction, the arm tends to not rotate; and when the rotatable drum is driven in the second direction, the arm tends also to rotate in that second direction at the same rotational speed. Friction means co-act between the arm and the rotatable drum so that when the drum is driven in the first direction and cable is being transferred between the driven and static drums, the friction means acts to maintain tension in the cable and to drive the arm and sheave to rotate about the shaft in the first direction; and when the rotatable drum is driven in the second direction, the friction means acts together with the tension in the cable being



transferred between the drums to retard the speed of rotation of the arm and sheave about the shaft.

Three embodiments are shown. In the first embodiment, a plate is provided with clutches between the plate and the rotatable drum and between the plate and the shaft; and the rotatable arm is frictionally coupled to the plate by friction pads. In the second embodiment a bearing sleeve is provided, together with ratchet and pawl means between the bearing sleeve and each of the rotatable and static drums. The rotatable arm is frictionally coupled to the bearing sleeve. In the third embodiment, a pair of opposed clutch assemblies is provided, each having a friction clutch and an overrunning clutch; and having a toothed belt extending from one of the rotatable or static drums to one of the clutch assemblies so that it overruns in one direction and drives against the friction clutch in the other direction of rotation of the rotatable drum, and vice versa.

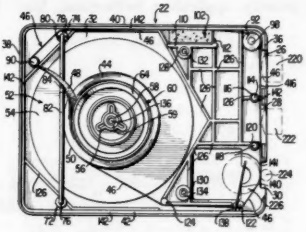
3,822,835

TAPE CARTRIDGE

Paul L. Shore, Potomac, Md., assignor to Tapecaster TCM, Inc., Rockville, Md.

Filed Mar. 23, 1973, Ser. No. 344,384
Int. Cl. B65h *17/48*
U.S. Cl. 242—55.19 A **4 Claims**

An endless tape cartridge is designed to reduce azimuth and phase errors. The tape is guided from the innermost convolution of the coil to a point on one side wall of the cartridge housing near a rear corner and is moved along this wall and around a machined metal guide post at the corner of the side wall and the front wall of the housing. A frictional drag is imparted to the tape by a foam pad which engages the tape at a point along the side wall, thus adjusting the tension in the tape before it is guided by the machined guide post. In order to rigidify the cartridge housing, the top and bottom walls thereof are provided with deep ribs, and tongue and groove mating is used between the cover and base of the housing. The cartridge also includes foam backing pads adjacent the transducer openings. These pads include a relatively rigid plastic



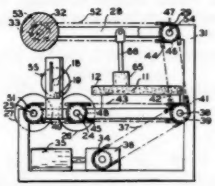
base and a foam body. The rigid base is received between spaced posts on opposite sides of the pad, the front post of each pair of gripping and deforming the foam body to retain the pressure pad in position.

3,822,836

APPARATUS FOR AND METHOD OF WINDING STRIP PRODUCTS

Richard Lloyd Troyer, Toledo; Theodore Richard Rohweder, and Ronald Buxton Raab, both of Perrysburg, all of Ohio, assignors to Johns-Manville Corporation, New York, N.Y.

Filed June 27, 1972, Ser. No. 266,623
Int. Cl. B65h *17/08*
U.S. Cl. 242—66 **17 Claims**



Strip products such as mineral wool blankets are wound on a mandrel having two elongate elements extending generally across the width of the strip and generally paralleling the winding axis of the strip. The strip is inserted between the elongate elements to develop an initial securing tuck of material when they are rotated around the winding axis and the projecting free end of the strip is carried and secured against one of the elements by the succeeding wrap of the strip. Wheels positioned normal to the winding axis support the elongate elements of the mandrel. Peripheral drive for winding is provided by a drive cradle which engages the wheels as the coil of strip is started and engages the outer periphery of the coil when its diameter exceeds that of the wheels. Mandrel indexing means position the elongate elements to receive the leading edge of strip to start the wind. The method and apparatus are of particular value in winding operations requiring an end tuck to be carried upward and against gravitational forces as where an upper surface of a horizontally fed strip is to be wound outermost although the positive control of the end tuck is advantageous in many winding orientations.

3,822,837

METHOD OF FIXING A CYLINDRICAL OBJECT HAVING A CENTRAL HOLE, AND SUPPORT THEREFOR

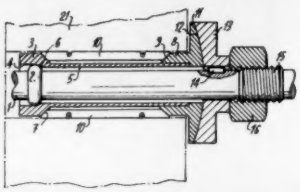
Stevan Celebonovic, Geneva, Switzerland, assignor to ROLPA S.a.r.l., Carouge-Geneva, Switzerland

Filed Mar. 3, 1972, Ser. No. 231,604

Claims priority, application Switzerland, Mar. 12, 1971, 3668/71

Int. Cl. B65h 75/24

U.S. Cl. 242—72.1 5 Claims



The object, e.g. a roll of paper, is fixed on a central tubular support provided with a shaft. The orientation of the axis of the object can be modified with respect to that of the shaft and the object locked on the support in the position corresponding to the desired orientation. The object rests by one of its flat surfaces on a guide perpendicular to the axis of the support, and the object is locked on the support, so that the axis of the shaft and that of the object are parallel.

3,822,838

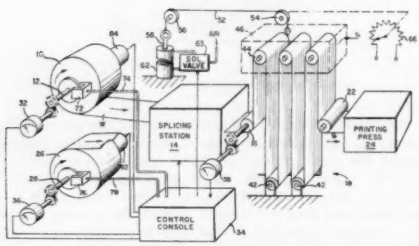
WEB HANDLING APPARATUS

Richard A. Butler, Jr., Chestnut Hill; Jack T. Hansen, Needham, both of Mass.; August R. Rump, Chicago, Ill., and Rudy R. Arendt, South Wales, N.Y., assignors to Butler Automatic Inc., Canton, Mass.

Filed Mar. 20, 1972, Ser. No. 236,122

Int. Cl. B65h 25/28

U.S. Cl. 242—75.44 19 Claims



Web handling apparatus pulls web from a supported roll at a selected speed. A brake is provided for controlling the roll speed and a sensor senses changes in the tension of the web caused by changes in the pulling force of the web. The brake is controlled in accordance with the output of the tension sensor so that the web is maintained substantially under constant tension. Also, the apparatus responds to the instantaneous size of the roll by modulating the braking means so that the drag force imparted by the brake to the web is substantially independent of roll size.

3,822,839

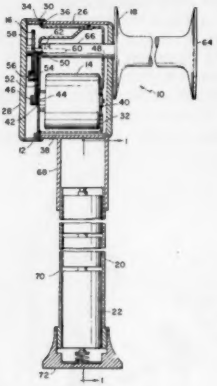
POWER DRIVEN KITE STRING REEL

Dominic J. Persichini, 6621 Arcolo Ave., Garden City, Mich. 48135

Filed Nov. 13, 1972, Ser. No. 306,301

Int. Cl. B65h 75/40

U.S. Cl. 242—96 8 Claims



A power driven kite string reel comprising a motor and speed reduction gear mounting box for mounting a connected reversible motor and speed reduction gears, a reel assembly having an axis of rotation supported for rotation on the box and engaged with the speed reduction gears to be driven thereby in opposite directions, a single handle assembly secured to the box having a longitudinal axis substantially perpendicular to the axis of rotation of the reel assembly including a source of electrical energy and switch means for connecting the source of electrical energy to the motor for reversibly driving the motor to wind up or unwind string connected to the reel assembly.

3,822,840

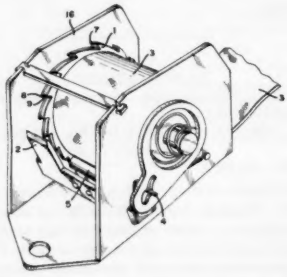
BELT RETRACTOR WITH SPRING BIASED AUXILIARY RATCHET WHEEL

Robert L. Stephenson, Sterling Heights, Mich., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Jan. 8, 1973, Ser. No. 321,899

Int. Cl. A62b 35/00; B65h 63/00

U.S. Cl. 242—99 6 Claims



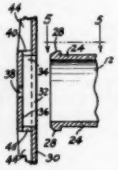
A reel-type retractor for a vehicle safety belt having the feature that a spring-biased light-weight ratchet wheel, rotatable within limits with respect to a ratchet wheel serving as a flange for the reel, is biased with its teeth maintained slightly in advance of those of the flange. This light-weight rotatable aux-

iliary ratchet wheel prevents the pawl from striking the tip of the teeth of the flange and rebounding, to thereby skip teeth. In such a situation, the pawl strikes the advanced tooth of the auxiliary ratchet wheel causing it to give way against its bias. As a result, the pawl will not rebound, but engage the first tooth presented.

3,822,841
KNOCKDOWN REEL

Kenneth E. Campbell, 4063 Old Orchard Rd., York, Pa. 17402

Filed Nov. 24, 1972, Ser. No. 309,143
Int. Cl. B65h *75/22, 75/14*
U.S. Cl. 242—115 **8 Claims**

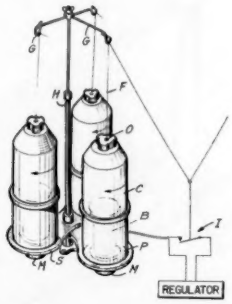


A knockdown reel comprising a tubular hub and having a pair of similar end flanges disconnectably attached to opposite ends of the hub by latching means capable of being released in order to separate the end flanges from the hub and thereby minimize the space consumed by said components in packaging, shipping and storing reels of this type. Actuation of the latching means is possible either manually or by relatively simple tools. The hub also may be made of a plurality of separable parts to further facilitate compactly arranging the components for the purposes described.

3,822,842
REELING DEVICE

Jean-Claude Perc, 74 rue de Archives, Paris 3e, France

Filed July 29, 1971, Ser. No. 167,163
Claims priority, application France, June 15, 1971, 71.21633; July 21, 1971, 71.26663
Int. Cl. B65h *49/00*
U.S. Cl. 242—129.72 **4 Claims**

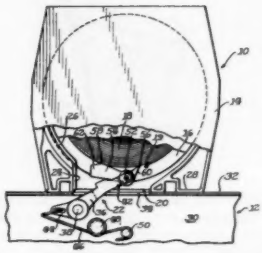


A device for unwinding a yarn reeled on a bobbin, in a textile machine, which comprises a main support, a yarn guide supporting stem, an eyelet coincident with the axis of rotation of the bobbin, and at least one bobbin carrier, characterized in that said bobbin carrier is driven for continuous or discontinuous rotation in a direction consistent with the yarn unwinding direction, the yarn speed depending on the subsequent use of the yarn.

3,822,843
APPARATUS FOR STRIPPING FILM FROM A REEL

Joerg Fischer, Wilmette, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Nov. 1, 1972, Ser. No. 302,683
Int. Cl. G03b *1/56, 1/04;* **G11b** *15/32*
U.S. Cl. 242—192 **10 Claims**

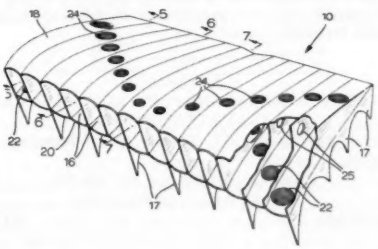


An apparatus for stripping the leader from a roll of film. A stripper arm is pivotally supported at one end and biased toward the film. The free end of the arm carries a pivotally supported crescent shaped stripper tip defining a leading edge, a trailing edge and a stripping surface. As a result of the shape of the tip, both the leading and trailing edges rest upon the outer surface of the coiled film assuring a constant angle between the stripping surface and the film regardless of the shape of the outer film convolution.

3,822,844
PARACHUTE

Stephen John Sutton, Islington, Ontario, Canada, assignor to Jack Sutton, Islington, Ontario, Canada

Filed June 25, 1973, Ser. No. 373,434
Int. Cl. B64d *17/02*
U.S. Cl. 244—145 **2 Claims**



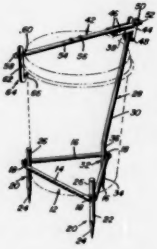
This invention relates to a parachute of the ram air canopy type wherein a canopy is made from a skin formed into a series of elongated, inflatable parallel cells disposed in side-by-side relation to constitute an airfoil when inflated. The inventive concept of the application is the formation of openings in the top and in the bottom wall of each of the cells to form an air passage. These air passages in the bottom and in the top walls of the cells are of greatest capacity in the two outside cells and become of progressively smaller capacity towards the centre of the airfoil. Adjacent cells in the airfoil are in communication with each other through a port in their common wall. The combinaion of passages in the top and the bottom wall of each cell as aforesaid and the port between adjacent cells greatly improves the stability of the parachute, especially under conditions of vertical descent.

3,822,845

GARBAGE CAN HOLDER

Robert J. Kennedy, and Rose M. Kennedy, both of 2343 Newton Street, Sidney, Nebr.

Filed June 28, 1973, Ser. No. 374,780
Int. Cl. A47g 29/00
U.S. Cl. 248—147 1 Claim



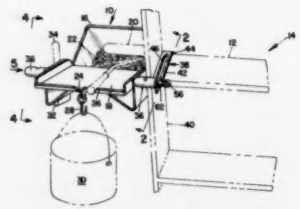
A stand embodying a base frame which is stationed wherever necessary or desired on the ground or other foundation and atop which a conventional garbage can is adapted to be removably seated for accessible use. The frame is provided with circumferentially spaced corner portions. Each corner portion is provided with a securely fastened vertical frame holddown stake. The several stakes have depending ground penetrating points and upper end portions projecting above the top side and functioning to engage and prevent displacement of that portion of the can surrounded thereby. A single upright has a lower end complemental to and joined with one corner portion of the frame and an upper free end portion. A normally horizontal arm is adapted to reside atop the usual cover provided on the can. The arm has a median portion provided with means which is securely operatively connectible to the cover. A rearward end portion of the arm is pivotally connected to the upper end of the upright. The freely liftable and lowerable forward end portion of the arm is provided with the can engaging means which is readily accessible and capable of being conveniently manipulated. When the can engaging means is released the lid or cover of the can is swung to an open position to render the body portion of the can readily accessible for such use as is desired.

3,822,846

COMBINED LADDER AND PAINT ROLLER PAN AND TRAY ATTACHMENT

Henry R. Jesionowski, 1437 Chrisler Ave., Schenectady, N.Y. 12303

Filed Jan. 19, 1973, Ser. No. 325,208
Int. Cl. B44d 3/12; E06c 7/14
U.S. Cl. 248—210 4 Claims



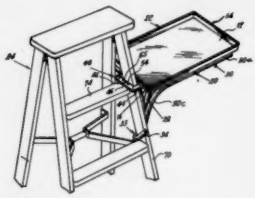
A combination platform roller pan and tray for a paint roller has a pair of aligned bosses which extend outwardly from each side thereof, the bosses being releasably engageable with locking means which is releasably associated with the ladder, the locking means in one form comprising a locking hook engageable with the step or rung of the ladder and, in another form, comprising a locking cam engageable in the rung of the ladder.

3,822,847

DETACHABLE SUPPORT TRAY FOR LADDERS

George Harvey Emmons, 11 S. 12th St., Marshalltown, Iowa 50158

Continuation-in-part of Ser. No. 358,584, May 9, 1973. This application May 22, 1973, Ser. No. 362,781
Int. Cl. E06c 7/14
U.S. Cl. 248—210 13 Claims



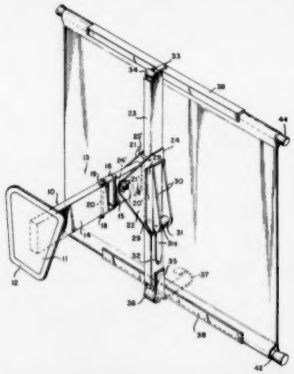
A tray for supporting paint cans, buckets, tools and the like is quickly and easily removably attachable to or removable from the side rail of a ladder. This tray includes tray supporting and ladder engaging braces in cooperation with which there is provided a simple but effective latch and when this tray attachment is mounted, the tray portion extends laterally outwardly from the ladder so as to not interfer with the normal use of the ladder. An adjustment is provided for effective use with ladder side rails of different thicknesses and widths.

3,822,848

PROJECTION SCREEN HOLDER

Paul A. Hopkins, 2164 Sunset River Dr., Jacksonville, Fla. 32210

Continuation-in-part of Ser. No. 782,518, Dec. 10, 1968. This application May 18, 1971, Ser. No. 144,442
Int. Cl. F16m 13/00
U.S. Cl. 248—279 7 Claims



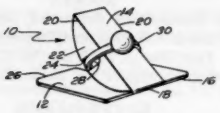
This invention relates to a picture screen holder of the wall mounted bracket type and provides for manual adjustment of the screen in a vertical angular as well as horizontal position by the operator or instructor standing in one position relative thereto and thus facilitates the unobstructed viewing of the picture screen by an audience and prevents any keystone or distortion effects of the picture produced by a projector.

3,822,849

FINGER RING HOLDER AND DISPLAY DEVICE

Robert D. Joyce, Glocester, R.I., assignor to Vargas Manufacturing Company, Cranston, R.I.

Filed Jan. 2, 1973, Ser. No. 320,608
Int. Cl. F16m *13/00*
U.S. Cl. 248—450 5 Claims



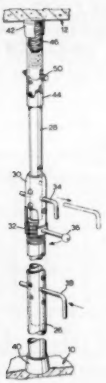
A finger ring holder and display device constructed from a unitary, one-piece blank of material of cardboard or the like comprising a substantially flat base portion, an arm member folded upwardly and rearwardly from one edge of said base portion, a pair of side walls folded along the longitudinal edges of said arm member and extending rearwardly therefrom, a pair of aligned notches extending inwardly from the edges of said side walls, and an upwardly extending tab member located rearwardly of and in alignment with said arm member, whereby when a finger ring is slid downwardly over said arm member, the opposite side portions of the shank extend through said aligned notches, and the rear portion of the shank is engaged beneath said tab member to maintain the ring in an upward disposition for ready viewing.

3,822,850

SUPPORT FOR CONSTRUCTION FENCE

Murray A. Elias, Toronto, Ontario, Canada, assignor to Dell Holdings Limited, Rexdale, Ontario, Canada

Filed Jan. 29, 1973, Ser. No. 327,820
Int. Cl. E04h *17/00*
U.S. Cl. 248—354 S 3 Claims



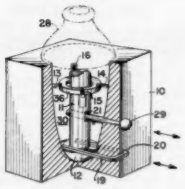
This invention relates to a tamper-proof jack post for a construction fence comprising two posts with a portion of their extent in telescoped relation, a sleeve in telescoped relation with the said two posts and in threaded relation with the first one of said two posts, said sleeve and said second post being formed to receive a first removable coupling device for said sleeve and said second telescoped post, said first post and said second post being formed to receive a second removable coupling device for said first post and said second post.

3,822,851

CHAIR BASE DEVICE

Rolfe S. Ollerhead, 188 Centre St., Somerset, Mass. 01609

Filed Mar. 11, 1971, Ser. No. 123,285
Int. Cl. F16m *13/00*
U.S. Cl. 248—372 10 Claims



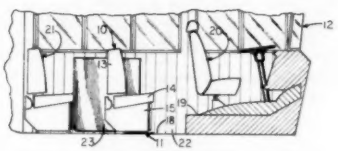
A supporting structure for tiltably mounting a chair seat or the like in which a frame secured to the seat bottom has a vertically disposed shaft means thereon of which the opposite end is secured to a half spherical ball. The half spherical ball is inserted into a block having an upwardly open cavity of which the bottom of the said cavity is of semi-spherical configuration thereby providing means for a chair seat or the like for tilting or rocking motion, or a combination thereof. Spring means are utilized for biasing this structure to a predetermined position. Restriction means are selectively engageable for prevention of a swivel or tiltable movement of the assembly.

3,822,852

COMPOUND SWIVEL STRUCTURE FOR VEHICLE SEAT SUPPORT

Howard M. Quakenbush, Monona Village, Wis., assignor to Flexsteel Industries, Dubuque, Iowa

Filed Feb. 23, 1972, Ser. No. 176,987
Int. Cl. F16m *11/08*; A47c *1/02*
U.S. Cl. 248—418 7 Claims



Compound swivel structure for supporting seat structures in a vehicle to allow selective positioning of a seat against a side wall, or in a forwardly facing direction or in a rearwardly facing direction, to permit utilization of space for maximum convenience and advantage. An arm is supported on a base for movement about a first vertical axis, a seat support being carried by the arm for movement about a second vertical axis, and locking means including a lock bar pivotal on the arm on a horizontal axis, lock the seat support relative to the arm and the arm relative to the base.

3,822,853

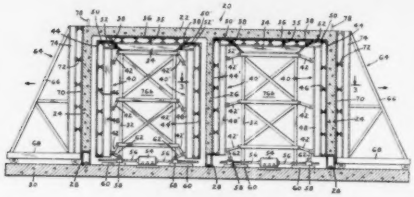
APPARATUS FOR PRODUCING MODULAR BOXLIKE UNITS

Shelley W. Shelley, c/o Shelley Enterprises, San Marcos Ave., Ext. El Comandante, San Juan, P.R. 00924

Division of Ser. No. 889,045, Dec. 30, 1969, abandoned, which is a continuation-in-part of Ser. No. 790,305, Jan. 10, 1969, Pat. No. 3,676,536. This application Feb. 22, 1972, Ser. No. 228,114
Int. Cl. E04g *11/02*
U.S. Cl. 249—27 10 Claims

Apparatus for producing modular boxlike units in which a ceiling slab, side walls and in some cases interior partitions are

cast together to comprise a first portion of a monolithic structure. The casting mold is characterized by having form portions pivotally mounted on a stationary structure and which are movable relative to the stationary structure between a closed position for casting in which all form portions are in a



predetermined aligned relationship and an open position for removing the cast first portion of the monolithic structure from the mold. After the mold is opened, the first portion of the monolithic structure is removed to a floor slab mold, and a floor slab is cast in contact with the side walls and interior partitions to form the completed monolithic structure.

3,822,854

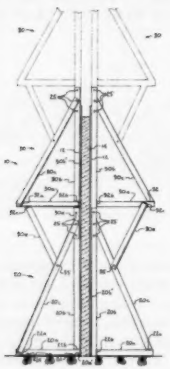
PREFABRICATED MODULAR ABUTMENT ASSEMBLY FOR SUPPORTING CONCRETE FORMS OF VARYING HEIGHTS

Herman H. Bondi, 1224 S.E. Henry, Portland, Oreg. 97202

Filed June 29, 1972, Ser. No. 268,184

Int. Cl. E04g *1/08*

U.S. Cl. 249—33 **5 Claims**



A prefabricated, reusable modular abutment assembly for supporting concrete wall forms comprising a base section and one or more upper sections which are stacked together in vertical arrangement to obtain bracing of the wall form to any desired height. The base section is in the configuration of an upright right triangle, the horizontal leg of which is secured by fasteners to the floor or ground support. The upper sections are also of right triangular configuration but are provided with both a projecting extension of the vertical leg, which connects with the corresponding vertical leg of the next lower section, and a bracing member which is secured to the juncture of the horizontal leg and the hypotenuse of the section and connects to a point on the hypotenuse of the next lower triangular section. Each of the modular sections are fabricated from angle iron elements and are provided with pre-formed bolt holes which are located so that, upon mounting of two or more sections in vertical stacking arrangement, the respective holes are aligned so that fastener bolts may be readily inserted therethrough. The resultant abutment assembly transmits the lateral, outward directed forces created by the hydrostatic pressure of the poured concrete downward into the lowermost base section which is firmly mounted to the supporting floor.

3,822,855

CASTING MOLD WITH STEAM-HEATED WATER JACKET

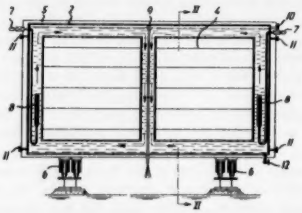
Gustav Erik Hummelshoj, Bagsvaerd, Denmark, assignor to Thomas Schmidt A/S, Bagvaerd, Denmark

Filed Mar. 3, 1972, Ser. No. 231,473

Claims priority, application Denmark, Mar. 15, 1971, 1222/71

Int. Cl. B22d *27/04*

U.S. Cl. 249—79 **5 Claims**



A process and moulds are described for moulding large slablike building elements from pre-heated concrete in which the moulds are heated by controlled injection of steam into voluminous water-filled cavities in the moulds regulated to keep the mould temperature at or near the desired concrete hardening temperature.

3,822,856

HOT RUNNER HEATER

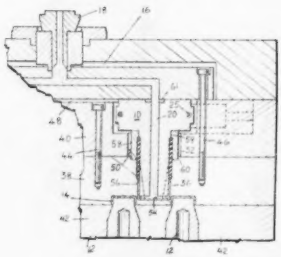
Jobst Ulrich Gellert, 227 Viewmount Ave., Toronto 19, Ontario, Canada

Filed Jan. 2, 1973, Ser. No. 320,505

Claims priority, application Canada, Nov. 21, 1972, 157346

Int. Cl. B29f *1/02*

U.S. Cl. 247—105 **5 Claims**



This invention relates to a heater forming part of a hot runner manifold system used in hot edge gate injection molding of plastics. The heater has a main body portion with a heating element and a nozzle having several nozzle openings through which molten plastic may be injected into several different mold cavities at the same time. The heater is located and mounted in such a way as to disperse effective even heat in two directions, downwards towards the edge gate and upward to the manifold. The nozzle member is generally conical shaped and has a number of equally radially spaced longitu-

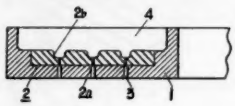
dinally extending convex portions containing the nozzle openings. The convex portions are shaped to transfer sufficient heat from the heating element in the main body portion to maintain the plastic in the nozzle openings in the molten state, while not excessively heating the plastic in the nearby mold cavities.

3,822,857

SYNTHETIC RESIN PLUG FOR VENT HOLE OF MOULD

Hiroshi Tanie, Osaka, Japan, assignor to The Toyo Rubber Industry Co., Ltd., Osaka, Japan

Filed Feb. 14, 1972, Ser. No. 225,717
Claims priority, application Japan, Feb. 16, 1971, 46-7281
Int. Cl. B29c *1/00*
U.S. Cl. 249—141 **2 Claims**



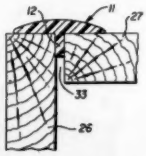
In a mould for moulding an elastic polymer material and having a plurality of vent holes, a synthetic resin plug for said vent hole which comprises one or plural micro-holes perforated therethrough of round cross-section having a diameter in a range of 0.05 to 0.5 mm and inlayed on the inner side of the mould, whereby air is readily exhausted through the said micro-holes of the resin plug with no choking phenomenon by the said polymer material. The said plug is provided over substantially whole the inner side of the mould or is provided only in the portion of each vent hole on the inner side of the mould. The synthetic resin is a heat-resistant and non-adherent material such as a fluoric resin.

3,822,858

SPACER ELEMENTS FOR CORNER FORMING SYSTEM

James W. Franklin, P.O. Box 3646, Albuquerque, N. Mex.

Continuation of Ser. No. 841,630, July 14, 1969, abandoned. This application Dec. 30, 1971, Ser. No. 214,390
Int. Cl. E04g *9/00*
U.S. Cl. 249—194 **6 Claims**



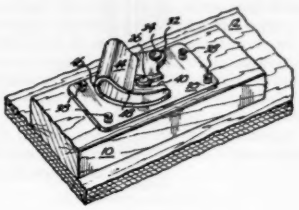
A forming system and accessories therefor in which sheet components are held together in operative relationship to provide mold elements for the formation of inside corners in concrete structures and in which at least a portion of the molded shape is derived from the placement of a spacer element having a lip member or extension engaged between adjacent sheet components for holding said sheet components slightly spaced apart to facilitate the stripping of the forms after use. The mold shape body of said spacer further serves to prevent the escape of poured concrete and/or provides decorative or functional indentations in the final concrete surface. The spacer elements may be used with support brackets that incorporate similar spacer tabs or in substitution therefor.

3,822,859

LOCK FOR FORM-TIES

Frank E. Buyken, 8620 Island Dr., Seattle, Wash. 98118, and Robert C. Foster, 225 N. Arlington Heights Rd., Elk Grove Village, Ill. 60007

Filed June 26, 1972, Ser. No. 266,225
Int. Cl. E04g *17/04*
U.S. Cl. 249—219 W **3 Claims**



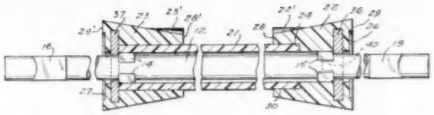
A lock primarily useful in producing gang forms, employs a slotted-cam in a pivoted lock plate to engage the head of a form-tie. The lock plate carries an integral rugged, bent over extension or strike arm which serves to cover the head of a form-tie and to receive heavy blows during either the closing or opening of the lock.

3,822,860

REUSABLE TIE ASSEMBLY FOR CONCRETE FORMS

Peter R. Lovisa, 1040 Pelhamdale Ave., Pelham, N.Y. 10803, and Dusan Tausanovitch, 24 Crestwood Dr., Northport, N.Y. 11768

Filed Mar. 7, 1972, Ser. No. 232,450
Int. Cl. E04g *17/06*
U.S. Cl. 249—217 **16 Claims**



A retractable, removable and reusable tie assembly for concrete forms which includes a single tie rod, and an internal spreader and spacing system which includes a sleeve means, the spreader system having built-in provisions for internal spreading and spacing of forms in such a manner as to permit the tie rod to be partially withdrawn on one side of the form facilitating the installation of the closing form, on the opposite side, and then to be inserted to engage and lock with the internal spreader system, thus keeping the two adjacent sides of the forms in a definite predetermined position apart during the concrete pour, then to be removed undamaged from the hardened concrete prior to dismantling of the forms, leaving the internal spreader in the concrete to be removed after stripping of the forms without damaging the internal spreader.

3,822,861

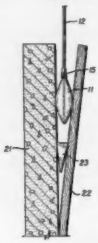
INFLATABLE FORM BREAKER FOR MOLDED CONSTRUCTION

Sam C. Scott, 2519 Walnut St., Denver, Colo. 80205

Filed May 21, 1973, Ser. No. 362,275
Int. Cl. B66f *3/24*; **B23p** *19/04*; **F161** *3/08*
U.S. Cl. 254—93 HP **12 Claims**

An inflatable device for removing the forms from molded concrete or the like construction including a soft, inflatable bladder having two flat, opposite sides which are distendable. An elongated handle is provided from one edge of the bladder

for manipulating the bag, and a pressurizing conduit communicates with the interior of the bladder for inflating and deflating it. The sides of the bladder may be covered with flexible sheet material for protecting the bladder against punctures during usage. The conduit is connected to a pressurizing



source and a control is provided for inflating and deflating the bladder. After the construction has hardened a wedge or spacer device, in cooperation with the inflatable bladder, may be inserted between the form and the surface of the construction whereby the spacer and bladder are progressively stepped across or down the surface of the molded construction.

3,822,862

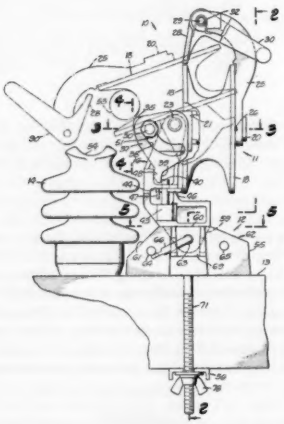
CONVENTIONAL CONDUCTOR STRINGING ASSEMBLY FOR POWER LINE USE

L. E. Lindsey, Pasadena, and Herbert F. Sammons, Glendale, both of Calif., assignors to Lindsey Manufacturing Company, Pasadena, Calif.

Continuation of Ser. No. 55,056, July 15, 1970, abandoned. This application June 2, 1972, Ser. No. 259,315

Int. Cl. B66d *1/36*

U.S. Cl. 254—196 **32 Claims**



Convertible conductor stringing assembly for use when installing a power conductor along a power line and usable in a variety of modes to accommodate different conditions. The conductor handling sheave is usable selectively while supported either on the insulator itself or on an insulator support cross arm and, in either mounting mode, the sheave itself is pivotable from one of its several normal stringing positions to a position for transfer of the conductor directly into clamping position on the insulator. The assembly readily accommodates a range of both insulator cross arm sizes on either of which the pivoting sheave subassembly is securable in a number of positions.

3,822,863

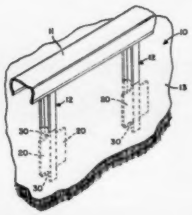
ALUMINUM BARRIER SUPPORT POST

Arthur W. Bidwell, Middletown, Ohio, assignor to Magno de Products, Inc., Trenton, Ohio

Continuation of Ser. No. 153,643, June 16, 1971. This application Jan. 22, 1973, Ser. No. 325,408

Int. Cl. E01f *15/00*

U.S. Cl. 256—13.1 **6 Claims**



A new post is comprised of an elongated body of extruded aluminum having linear, uninterrupted surfaces and having an integral post portion of one cross-section and an integral drive-blade portion of a different cross-section. The drive-blade portion includes a pair of integrally extruded drive blades extending outwardly in opposite directions from the body, and the integral connections of the drive blades to the body facilitate straight driving into the ground with a minimum of soil disturbance. The invention provides a one-piece barrier support post with integral drive blades which requires less maintenance than steel posts and has improved performance properties over two-piece aluminum or steel barrier post constructions.

3,822,864

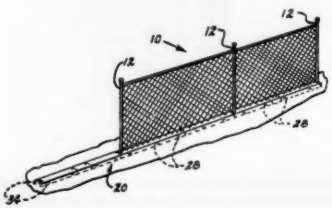
WEED BARRIER FOR FENCING

Gary L. Keys, 16683 Walter, Southgate, Mich. 48195

Filed Sept. 13, 1972, Ser. No. 288,711

Int. Cl. E04h *17/14*

U.S. Cl. 256—32 **5 Claims**

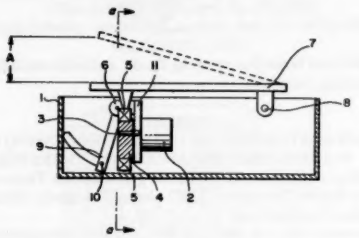


A weed barrier for use in combination with fencing, wherein nestable and telescopic channel shaped members are disposed and secured along the ground and beneath intermediate each of the fence posts and beneath the fence wire, so as to inhibit weeds, vegetation, etc., from growing therebeneath. The proposed weed barrier lends an esthetic and ornamental appearance, as well as serving to facilitate the mowing of the lawn etc, adjacent to the fence.

3,822,865
APPARATUS FOR MOVING SUBSTANCES

Jochen Koblo, Wiesbaden, Germany, assignor to Kalle Aktiengesellschaft

Filed Dec. 5, 1972, Ser. No. 312,270
Claims priority, application Germany, Dec. 8, 1971, 2160815
Int. Cl. B01f 11/00
U.S. Cl. 259—72 8 Claims

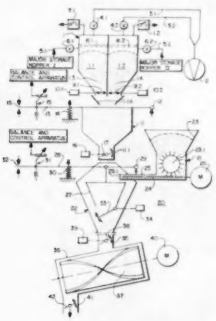


This invention relates to an apparatus comprising a housing, a table pivotally secured at one end thereof to said housing, a rotatable eccentrically mounted disc pivotally secured to said housing, bearing means surrounding said disc and supporting the free end of said table, means for pivoting said disc and means for rotating said disc.

3,822,866
FEEDING, WEIGHING AND MIXING APPARATUS

Henri H. Daester, Bottmingen near Basle, and Alfred Jungling, Muttenz near Basle, both of Switzerland, assignors to Daester-Fairtec AG, Basle, Switzerland

Filed Sept. 12, 1972, Ser. No. 288,342
Claims priority, application Switzerland, Sept. 15, 1971, 13518/71
Int. Cl. B28c 7/04
U.S. Cl. 259—149 10 Claims

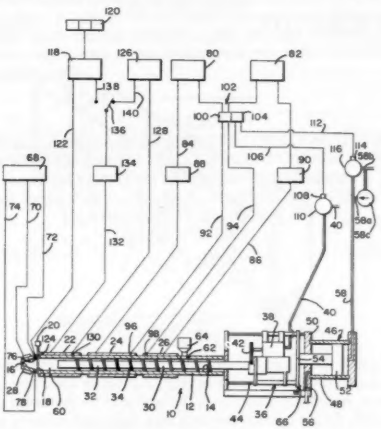


An apparatus for feeding, weigh proportioning and mixing a first flowable material with other likewise flowable or liquid or paste-like material, characterised by hopper equipment containing one or more separate chambers for separately storing said first flowable material, a stabilizing zone for said first flowable material in each of said hopper chambers, a first gating means at the bottom of each of said stabilizing zones, at least one first weighing means comprising a first weigh hopper, a first discharging device and a motion transmitting means, one or more storage hoppers for said other flowable or liquid or paste-like material, each associated with a second gating means, a second weighing device comprising a second weigh hopper, a closure fitted to said second weigh hopper and a second motion transmitting means, a second discharging device and a mixer, the arrangement being such that at least part of the charging opening of said first weigh hopper is in the direction of fall below its associated first gating means, that at least part of the charging opening of said second weigh hopper is in the direction of fall below the discharging means of the associated first weigh hopper and that the second discharging means is in the direction of fall below said closure of the second weigh hopper and provides communication in said direction of fall with said mixer. A method of operating the apparatus is also described.

3,822,867
CONTROL APPARATUS AND METHODS FOR MOLDING MACHINERY

William B. Evans, Nashua, N.H., assignor to Improved Machinery Inc., Nashua, N.H.

Filed Oct. 17, 1972, Ser. No. 298,238
Int. Cl. B29f 3/08; B29b 3/00
U.S. Cl. 259—191 23 Claims



Apparatus and methods wherein the directly sensed temperature of plasticized material discharged from a barrel is employed for controlling the temperature of the portion of the barrel adjacent to the discharge of the plasticized material therefrom and, alternatively, as during machine warm-up, the temperature of such barrel portion is controlled independently of said sensed temperature. Also, the temperature of a plurality of other portions of the barrel is controlled by a single control device; and back pressure on the screw during movement away from the barrel discharge and the screw driven rotation are controlled by a single control device.

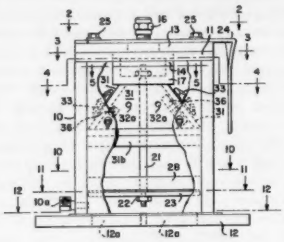
3,822,868
CARBURETOR

Clifford T. Carnes, 731 McCray, Hollister, Calif. 95023

Filed Nov. 19, 1970, Ser. No. 91,080
Int. Cl. F02m 29/02
U.S. Cl. 261—50 R 3 Claims

A carburetor provided with an air fuel mixing compartment into which the flow of fuel and air are controlled simultane-

ously. The air flow drives an impeller arrangement in the compartment which agitates the mixture. The air fuel mixture is



then drawn out of this compartment by suction into the engine intake manifold through a flow control baffle.

3,822,869

LIQUID DISCHARGE MEMBER FOR LIQUID-VAPOR CONTACTING TRAY

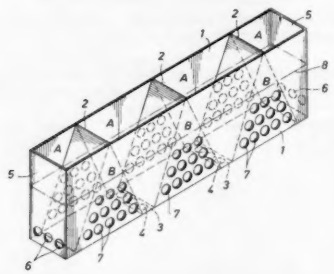
Alfred L. Van Kleef, The Hague, Netherlands, assignor to Shell Oil Company, New York, N.Y.

Filed Feb. 5, 1973, Ser. No. 329,773

Claims priority, application Great Britain, Feb. 7, 1972, 5620/72

Int. Cl. B01f *3/04*

U.S. Cl. 261—114 R **18 Claims**



Liquid discharge members for liquid-vapor contacting trays having vertical side walls laterally confining a narrow oblong space, which accommodates the whole or a substantial part of a baffle fitting against the long side walls and running up and down, which creates compartments A that are open at the top and compartments B that are open at the bottom, lying next to one another in the sequence A-B-A-, of which the compartments A are provided with one or more discharge openings.

3,822,870

REINFORCING MEMBERS FOR RUBBER ARTICLES

Jacques Champleboux, 36 rue de Tremoneix, and Robert Delaux, 1442 rue Auguste, both of 63 Clermont-Ferrand, France

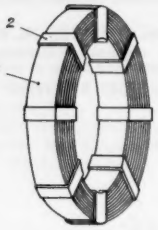
Filed May 25, 1972, Ser. No. 256,759

Claims priority, application France, May 26, 1971, 71.19179; May 27, 1971, 71.19409; Nov. 12, 1971, 71.40703

Int. Cl. F16f *3/10*

U.S. Cl. 267—152 **15 Claims**

A reinforcing member for a rubber article in the form of a ring or hollow sleeve comprises a flexible hoop made from a thin and elastic strip of sheet metal wound into a spiral of several convolutions which latter are superimposed and held solidly together to form an annular member capable of being elastically deformed under flexion when stressed by a load applied perpendicularly to the axis of the coil. The invention also relates to articles such as shock-absorbers, particularly marine



buffers, and hoses for pumping fluids, and reinforced by such reinforcing members.

3,822,871

APPARATUS FOR CONTINUOUS PROCESSING OF SULFIDE ORES AND APPARATUS THEREFOR

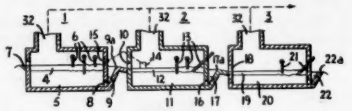
Toshikazu Morisaki, 12-23-chome Sakuragaoka Tama-Machi, and Kazuo Tachimoto, 12-47-chome Takanawa Minato-ku, both of Tokyo, Japan

Division of Ser. No. 881,226, Dec. 1, 1969. This application Jan. 18, 1972, Ser. No. 218,685

Claims priority, application Japan, Dec. 7, 1968, 43-89818

Int. Cl. C22b *9/12*

U.S. Cl. 266—11 **16 Claims**



An apparatus for continuous processing of sulfide ores which comprises a combination of smelting, slagging, and blister furnaces, or of smelting and blister furnaces.

3,822,872

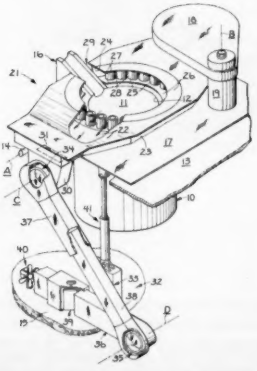
APPARATUS FOR COLLECTING AND EXTRACTING FURNACE FUMES

Donald C. F. Nell, 207 Schramm Dr., Pekin, Ill. 61554

Filed Apr. 16, 1973, Ser. No. 351,194

Int. Cl. C21c *5/38*

U.S. Cl. 266—19 **20 Claims**



A furnace, adapted to produce molten metal in a melting chamber thereof, is pivotally mounted on a stationary support.

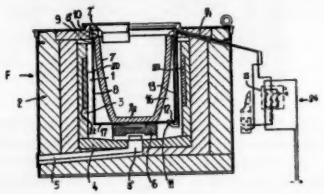
A fume collector, having an opening formed therethrough to facilitate charging of the chamber, is fixedly mounted on the furnace. A generally annular collecting chamber is defined in the collector to circumvent such opening. The upper end of a first conduit is pivotally mounted on the collector and communicates with the collecting chamber whereas the lower end of the first conduit is mounted on the end of a stationary second conduit and communicates therewith to extract the fumes.

3,822,873

FURNACE FOR MELTING OR HEATING METALS

Oskar Pletscher, Marthalen, Switzerland, assignor to Gebruder Pletscher, Marthalen, Switzerland

Filed July 12, 1973, Ser. No. 378,414
Claims priority, application Austria, July 17, 1972, 6142/72
Int. Cl. F27b *14/08*
U.S. Cl. 266—33 R **8 Claims**



A furnace for melting or heating metals comprising a furnace compartment enclosed by a refractory lining and a crucible for the melt arranged in the furnace compartment. Contacts are provided at the lower region of the furnace compartment, these contacts being arranged in the current circuit of a monitoring device and such contacts are electrically connected with one another by metal which may possibly flow out of the crucible into the furnace compartment. A baffle or guide plate, preferably a sheet-metal deflector or guide, engages beneath the contacts and extends at least over the region of the furnace compartment spanned by the crucible. The baffle plate is exposed to the thermal radiation emanating from heating elements.

3,822,874

RESTRAINT SYSTEM FOR TUBULAR SELF-ERECTING DEVICES

Kenneth J. Snyder, Perkasie, and Howard C. Valle, Doylestown, both of Pa., assignors to Ametek, Inc., New York, N.Y.

Filed Jan. 5, 1973, Ser. No. 321,155
Int. Cl. F16f *1/10*
U.S. Cl. 267—156 **6 Claims**

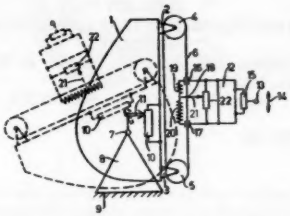
A restraint system for a tubular self-erecting device has a self-coiling spiral spring extending inside the tubular device and secured to the outer end thereof. The spring is mounted for winding and unwinding below the tubular device and has means to limit the extension of the spring.

3,822,875

TILTABLE X-RAY EXAMINATION TABLE

Walter Schmedemann, Hamburg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 21, 1972, Ser. No. 317,410
Claims priority, application Germany, Jan. 8, 1972, 2200848
Int. Cl. A61g *13/00*
U.S. Cl. 269—323 **6 Claims**



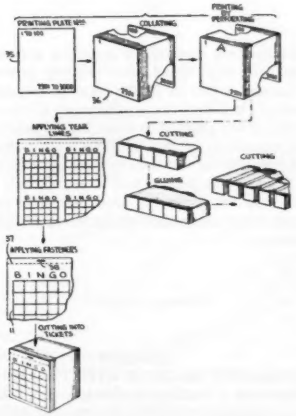
A tiltable patient table having a carriage that is displaced by means of a drive system; the table has a safety device whereby the carriage is connected to a drawing means such that a measurable force occurs whenever the carriage collides with another object, such as the patient, and automatic controls are affectuated.

3,822,876

PROCESS OF MAKING TICKET PACKETS WITH THE TICKETS OF EACH PACKET HAVING CONSECUTIVE AND CONSTANT NUMBERING THEREON

John J. Frain, P.O. Box 94, Rockaway Beach, N.Y. 11694

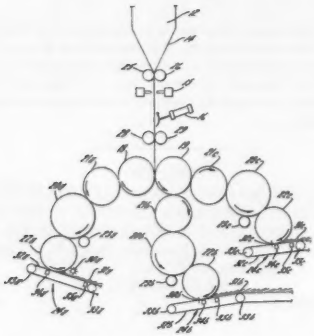
Filed May 4, 1973, Ser. No. 357,377
Int. Cl. B41f *13/54*
U.S. Cl. 270—1 **4 Claims**



Process of making ticket packets wherein the tickets of each packet have consecutive plate numbers and a constant serial number thereon, and wherein the tickets of other packets each respectively have a different serial number with the same progression of plate numbers for the tickets of each packet. A

plurality of sheets are printed, each with a number of tickets thereon identified by a different plate number printed successively in series after which sheets of one series are collated with sheets of successive series to form stacks. The tickets on the sheets of each stack are printed with a serial number by perforating said number through the stack. The sheets of each stack are then fastened together along rows of the tickets, after which the stacks are cut into ticket packets. Tear lines may also be provided for the tickets of each packet.

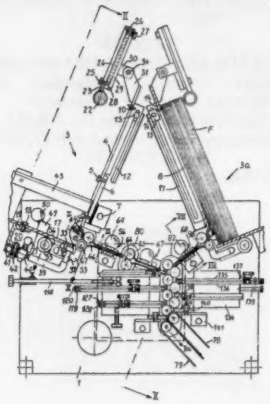
3,822,877
WEB FOLDER PROTECTION APPARATUS AND METHOD
F. John Littleton, Effingham, Ill., assignor to World Color Press, Inc., Maryland Heights, Mo.
Filed July 31, 1972, Ser. No. 276,371
Int. Cl. B65h *43/02*
U.S. Cl. 270—56 **7 Claims**



An apparatus and method for detecting jam-ups in a web folder used with high speed press printing presses. The apparatus includes a pair of fluidic sensing devices located in close proximity to a final run out conveyor for the folder. The sensing devices are adapted to sense the presence or absence of folded signatures at the location where signatures are deposited onto the run out conveyor and at a location a short distance downstream thereof and to individually activate an emergency stop circuit for the press and other protective or alarm means when an absence of signatures is sensed at one of the locations.

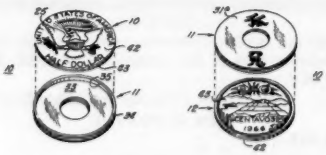
3,822,878
SHEET FOLDING MACHINE WITH TWO MAGAZINES
Dante Mantovani, 7 Via Sigonio, Bologna, Italy (48100)
Filed Feb. 16, 1972, Ser. No. 232,322
Claims priority, application Italy, Feb. 23, 1971, 3350/71
Int. Cl. B65h *45/14*
U.S. Cl. 270—68 A **2 Claims**

Folding machine for sheets comprising two magazines containing a package of sheets, a device withdrawing the sheets one at a time from the magazines, transferring members and folding devices proper. The transfer members consist of two series of cooperating rollers lying in two vertical parallel planes. The folding devices comprise superimposed rollers,



plates and frames. The sheets are forced from rollers to enter the gaps defined by said frames, and to be doubled while arrested by adjustable stops located in the frames at accurate distances.

3,822,879
COIN MAGIC DEVICE
Pressley H. Guitar, P.O. Box 22, 79 Abilene, Tex. 79604
Filed Dec. 1, 1972, Ser. No. 311,365
Int. Cl. A63j *5/00*
U.S. Cl. 272—8 R **8 Claims**



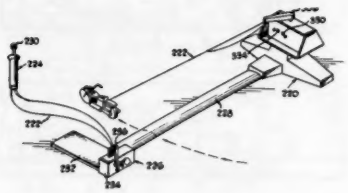
A device for performing close-up coin magic including a gimmicked Oriental type annular coin and a nesting coin-like insert disc. The Oriental coin has one conventional face and an opposite face having a circular insert pocket which receives the nesting insert disc. The insert disc has a first face formed by the major portion of one face of a first coin and a second opposite face formed by one face of a second coin of contrasting color. When the members of the device are nested together with the first coin face displayed, the illusion of a complete first solid coin is presented to the viewer. When the device is turned over, the insert separated from the Oriental coin, and both members displayed, the illusion is presented of an Oriental coin and a separate solid coin of the second type. In the hands of a skilled performer, the device permits the performance of magic tricks giving the appearance of the manipulation of an annular Oriental coin and two solid coins. The use of the Oriental coin with the central opening is a psychological deterrent to a belief that the coins nest together.

3,822,880

TOY MOTORCYCLE ADJUSTABLY TETHERED TO A PYLON

Reuben Terzian, 1344 N. Dearborn, Chicago, Ill. 60605; Robert S. McKay, 7420 Bechwith Rd., Morton Grove, Ill. 60053, and Marvin I. Glass, 815 Lasalle St., Chicago, Ill. 61607

Division of Ser. No. 113,300, Feb. 8, 1971, Pat. No. 3,708,913.
This application July 3, 1972, Ser. No. 268,591
Int. Cl. A63h *17/38, 30/00*
U.S. Cl. 272—31 R 3 Claims



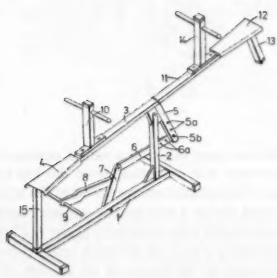
A two-wheeled toy vehicle including a wheel drive motor and capable of maintaining an upright position during operation without the assistance of a third wheel or the like. The exemplary embodiment is configured in the form of a motorcycle and includes an electric drive motor and batteries therefor located below the axis of rotation of the wheels to provide the vehicle with an extremely low center of gravity thereby enhancing its stability during operation. The vehicle can be operated as a free running vehicle or, in the alternative, can be provided with a tether of variable length and with a variable speed control, both of which can be controlled by a user during operation of the vehicle.

3,822,881

SEE-SAW WITH FOOT OPERATED LINKAGE

Walter Douglass, 30 Groovewood Close, Chorleywood, and Paul John Murgatroyd, Gulbrook, Boxmore, Hemel Hempstead, both of England

Filed Oct. 3, 1972, Ser. No. 294,592
Claims priority, application Great Britain, Oct. 7, 1971, 46620/71
Int. Cl. A63g *11/00*
U.S. Cl. 272—54 5 Claims



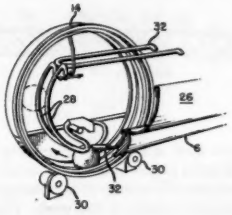
A child's see-saw has a rocking bar with a single seat near one of its ends and its pivot point near the other end. The rocking bar is connected by a linkage to a rocking lever provided with a foot-rest beneath the seat so that a child can rock itself on the see-saw by pushing down on the foot rest to raise the seat and relaxing foot pressure to lower the seat. An extension may by provided carrying a second seat so that two children may operate the see-saw in the normal way.

3,822,882

BALL RETURN MECHANISM FOR AUTOMATIC BOWLING ALLEYS

James D. Easterly, 11027-35th, N.E., Seattle, Wash. 98125

Filed May 3, 1973, Ser. No. 356,737
Int. Cl. A63d *5/02*
U.S. Cl. 273—49 2 Claims



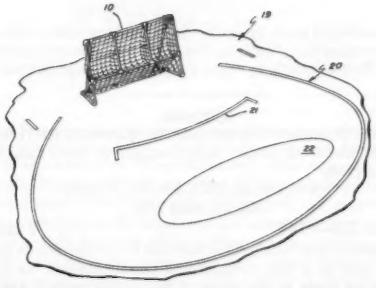
A flexible arm provided with an exterior surface having a high coefficient of friction is attached to the rear side of a pit cushion such that it extends into the ball return mechanism when the cushion is lowered. When a bowled ball strikes the cushion, the cushion is raised to allow the ball to pass thereunder and is then lowered bringing the arm into contact with the ball. Should the ball be spinning, engagement of the arm therewith causes the spinning to cease and assures a more positive engagement of the ball by the ball return mechanism.

3,822,883

COMPARTMENTED NET TARGET AND PLAY FIELD

John B. De Vos, 625 Downing Rd., Libertyville, Ill. 60048

Continuation of Ser. No. 105,408, Jan. 11, 1971, abandoned.
This application Jan. 22, 1973, Ser. No. 325,320
Int. Cl. A63b *71/02*
U.S. Cl. 237—95 H 7 Claims



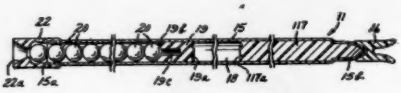
A net ball game employs a target comprising a partitioned net which provides three upper compartments for receiving an aerial projectile, e.g., a ball, and a lower compartment for receiving surface and/or aerial projectiles. The game is played on a flat arcuate playing surface having an enclosed area thereon for defensive play while the remainder of the field is used for offensive play.

3,822,884

SHOT PROPELLING ARROW

Roger J. Curran, Stratford, and Kenneth W. Misevich, Fairfield, both of Conn., assignors to Remington Arms Company, Inc., Bridgeport, Conn.

Filed Nov. 8, 1972, Ser. No. 304,665
Int. Cl. F41b 5/02
U.S. Cl. 273—106.5 R 15 Claims



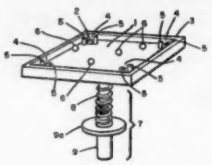
A tubular arrow shaft is sealed at its nocked end portion. The seal and a slidable piston in the shaft retain a compressible fluid therebetween. Forwardly of the piston, a plurality of projectiles are aligned axially in the shaft. The forward acceleration of the arrow by a bow and the inertia of the projectiles compresses the retained fluid while accelerating the projectiles up to the arrow velocity. Thereafter, the fluid expansion causes substantially all the energy of the arrow to be transferred to the projectiles which are propelled toward a target while the arrow falls to the ground within a few feet of the bow.

3,822,885

BALL GAME DEVICE HAVING A FLEXIBLE HANDLE

Frank S. Domka, 1738 W. Forest, Inkster, Mich. 48208, and Barry Jackson, 26814 Kean, Detroit, Mich. 48141

Filed June 2, 1972, Ser. No. 259,283
Int. Cl. A63f 7/16
U.S. Cl. 273—110 10 Claims



A hand-held game device having a platform with cavities to receive spherical objects is described. The device features a single flexible handle by which the platform is manipulated.

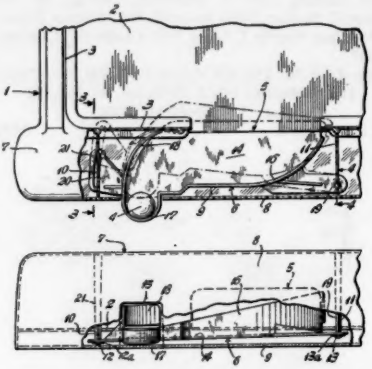
3,822,886

GAME BOARD WITH RETRACTABLE BALL RETURN

Claudio Cecchetti, Milan, Italy, assignor to Arco Falc Srl., Milan, Italy

Filed June 22, 1873, Ser. No. 372,859
Int. Cl. A63f 7/00
U.S. Cl. 273—125 R 7 Claims

A game board adapted for use with a free movement game piece such as a ball, comprising a playing surface, an inner wall at an angle to the plane of the playing surface and an opening in the wall to receive the game piece from the playing surface. An outer wall is spaced from the inner wall and provided with an opening, and a game piece-return element is pivotally mounted in the space between the walls. The game piece-return element is biased in normal playing position such that it communicates with the opening in the inner wall to receive the game piece, and is inclined towards a cup section thereof which extends beyond and projects through the opening in the outer wall to permit the game piece to be retrieved therefrom. The game piece-return element is pivotally



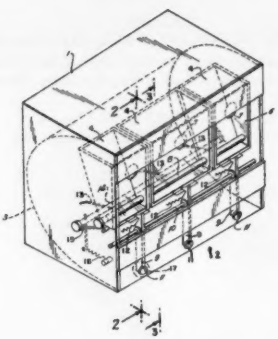
mounted so that it can be depressed within the space between the walls whereby the exterior surface of the cup section does not project beyond the exterior surface of the exterior wall.

3,822,887

SURFACE PROJECTILE TARGET WITH BALL DISPENSING MEANS

Sol Friedman, 10 Ronald Dr., Monsey, N.Y. 10952

Filed Dec. 27, 1971, Ser. No. 212,020
Int. Cl. A63f 7/00
U.S. Cl. 273—127 D 5 Claims



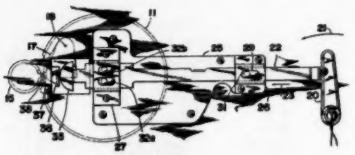
A housing has an open side and a wall is concavely curved inwardly of the open side extending from the top to the bottom of the latter. Receptacles are mounted in the open side for turning movement about a horizontal axis and each have an opening which normally faces upwardly under the influence of a spring-biased detent a portion of which extends beneath the respective receptacle in the region of the bottom of the open side. When a marble is rolled into the open side at the bottom thereof and misses the aforementioned portion, it rolls up on the curved wall and drops into the upwardly directed opening of one of the receptacles. When the marble hits the aforementioned portion of the detent means, it thereby releases the receptacle associated therewith so that the receptacle can tilt under the influence of gravity until its opening is downwardly directed and any marbles accumulated in the receptacle can fall out onto the curved wall and are rolled back to the player.

3,822,888

TRIP ACTUATION DEVICE FOR AN AUTOMATIC RECORD PLAYER

Tatsuo Kondo, Yokohama City, and Masae Murata, Yamato City, both of Japan, assignors to Victor Company of Japan Limited, Yokohama City, Japan

Filed Dec. 7, 1971, Ser. No. 205,623
Claims priority, application Japan, Dec. 8, 1970, 45-109138
Int. Cl. G11b 17/06
U.S. Cl. 274—1 L 3 Claims



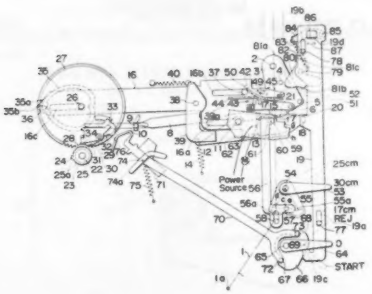
A device wherein balls are interposed between a trip slide for transmitting the movement of a pickup arm to a trip for controlling the automatic record player and brackets for supporting the trip slide so that the trip slide may smoothly move in sliding motion.

3,822,889

AUTOMATIC RECORD PLAYER

Takamichi Nakagawa, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sept. 5, 1972, Ser. No. 286,052
Claims priority, application Japan, Sept. 6, 1971, 46-69109; Sept. 6, 1971, 46-81505; Sept. 6, 1971, 46-81506; Sept. 6, 1971, 46-81507; Sept. 6, 1971, 46-81508; Sept. 6, 1971, 46-81509; Sept. 6, 1971, 46-81510; Sept. 6, 1971, 46-84168
Int. Cl. G11b 17/08
U.S. Cl. 274—10 R 12 Claims



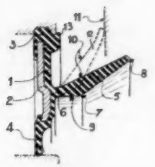
An automatic record player of simplified construction which comprises a tone arm, a turntable, a turntable drive system, a switching knob for causing the tone arm to be brought in position to perform a record to be played and for intermitting the operation of the tone arm, a record size setting unit including a record size selector knob for positioning the tone arm at a predetermined position immediately above the lead-in groove of the record to be played, and a switch mounting plate rigidly mounted with a switch. The automatic record player with the above construction can be also used as a semi-automatic one and can be operated not only by operating the switching knob, but also by manually moving the tone arm to the predetermined position.

3,822,890

BEARING SEALS

Claude Raymond Bourgeois, Annecy, France, assignor to Societe Nouvelle De Roulements, Annecy, France

Filed Jan. 15, 1973, Ser. No. 323,724
Int. Cl. F16j 15/34
U.S. Cl. 277—65 8 Claims



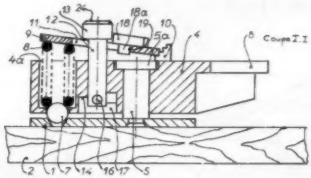
Seal for rolling-contact bearing, of the type adapted to be fitted in the outer race thereof or in a cavity intended for said bearing, which comprises two sealing lips directed the one radially towards the inner race and the other axially outwards of the seal and bearing assembly. The outer axial lip has a flattened triangular configuration and the edge having the smallest acute angle of this lip acts as a frictional contact element, the edge having the largest acute angle constituting a kind of circular hinge interconnecting the seal body and said lip, the circular edge of obtuse angle creating a reinforcing area between the edges of said lip, its width corresponding to about five times its thickness and its inclination corresponding to about 10° to about 60° in relation to the bearing axis. This seal is also applicable to other rotating members.

3,822,891

SKI BINDING WITH REGULATED RELEASE

Marcel Vouthier, Cluses, France, assignor to Etablissements Carpano & Pons S.A., Cluses, France

Filed Oct. 18, 1972, Ser. No. 298,571
Claims priority, application France, Oct. 19, 1971, 71.37785
Int. Cl. A63c 9/08
U.S. Cl. 280—11.35 T 10 Claims



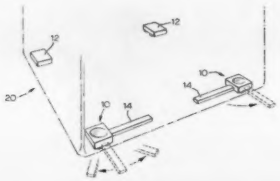
The force required to release a ski binding is regulated by a spring the compression of which is controlled by a lever, one end of which bears on the spring and the other rests on a fixed support of selected height providing a fulcrum for the lever. A rotatable shaft extends through an elongated slot in an intermediate portion of the lever and has a head bearing on the upper face of the lever while at the opposite end there is a radially projecting pin engageable with a fixed helical ramp. Adjustment of spring tension within a selected range is provided by a single turn of the shaft which is provided with indexing means to indicate the rotational position of the shaft and hence the corresponding spring pressure. Different ranges of spring pressure are provided by positioning the fulcrum end of the lever on one or another steps of a stationary stepped support or in one or another position on a stationary inclined plane. The lever is positioned longitudinally by means of a key member to assure that it is retained in the selected position of the support.

3,822,892

APPLIANCE SUPPORT

Stanley Albert Charles Browning, R.R. No. 1, Glen Williams, Ontario, Canada

Filed Aug. 1, 1973, Ser. No. 384,454
Claims priority, application Canada, June 18, 1973, 174321
Int. Cl. B60b 33/04
U.S. Cl. 280—47.11 5 Claims



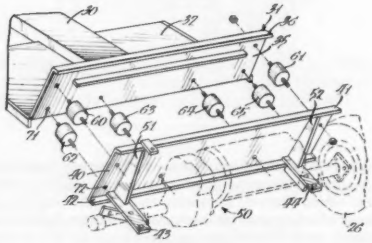
Roll-out apparatus for major appliances such as domestic refrigerators in the form of a plurality of low, multi-wheel bogeys for insertion in supporting relation beneath the appliance includes the provision of steering arms extending from the accessible front bogeys to permit pivoting of the respective bogeys in steering relation relative to the appliance. The steering bogey upper surfaces are recessed to receive foot portions of the appliance therein. The less accessible bogeys may be provided with a contact cement upper surface, for affixing to the appliance. Also the bogeys may be provided with a resilient layer to serve as a spring load transfer relation, transverse loads being transferred by shear pins where appropriate.

3,822,893

VEHICLE AND VERTICAL SHOCK CONVERTER THEREFOR

Keith L. Huber, P.O. Box 3565, Springfield, Ill. 62708

Filed Nov. 15, 1972, Ser. No. 306,852
Int. Cl. B60g 11/24
U.S. Cl. 280—124 R 3 Claims



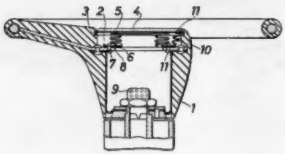
A vehicle, such as a golf car or the like and having a vertical shock converter construction wherein the vehicle has a main frame and front and rear wheels and resilient structure connecting the rear suspension mount to the main frame of the vehicle for pivotal movement of the rear suspension mount about an axis offset from and parallel to the axis of the rear axle whereby vertical shocks transmitted to the rear wheels are substantially converted to forces acting longitudinally of the vehicle to minimize the transmission of bumps to the passengers.

3,822,894

STEERING WHEEL WITH BUILT-IN AIR CUSHION

Reinhold Muller, Mainflingen, and Konrad Randelzhofer, Glattbach, both of Germany, assignors to Petri Aktiengesellschaft, Aschaffenburg, Germany

Filed Sept. 23, 1971, Ser. No. 182,949
Claims priority, application Germany, Oct. 24, 1970, 2052357
Int. Cl. B60r 21/10
U.S. Cl. 280—150 AB 1 Claim



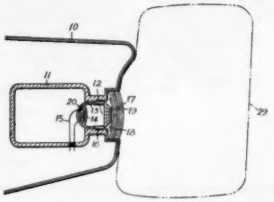
It is known to provide a motor vehicle steering wheel with a central dish or cup containing a collapsed cushion which in the case of an accident is suddenly inflated. The cushion is normally enclosed by a cover, which on inflation of the cushion flies freely off. The present invention provides a strong hinge between the cover and the dish so that on inflation of the cushion the cover is pushed away from the driver, but not liberated.

3,822,895

INFLATABLE RESTRAINT DEVICE FOR OCCUPANTS OF VEHICLES AND THE LIKE

Takeshi Ochiai, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota City, Aichi-ken, Japan

Filed Dec. 13, 1971, Ser. No. 207,385
Claims priority, application Japan, Dec. 25, 1970, 45-128772
Int. Cl. B60n 21/08
U.S. Cl. 280—150 AB 5 Claims



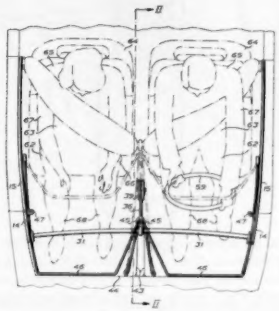
An inflatable restraint device for occupants of motor vehicles and the like comprising a gas cylinder having a valve adapted to be opened by a signal from collision detection means which may be collision prediction means or collision sensing means for ejecting gas therefrom, and a gas bag adapted to be inflated by the gas ejected from said gas cylinder. Said device further comprises gas cylinder valve opening means comprising a seal for the gas cylinder made of a material which tends to undergo brittle rupture, and a rupture inducing member for inducing the brittle rupture of said seal upon receipt of a signal from the collision detection means.

3,822,896

AUTOMATICALLY RELEASABLE SAFETY DEVICE FOR VEHICLES

Gert Benny Hallberg, Estlandsgatan 3A, S-214 31 Malmo, Sweden

Filed Jan. 12, 1973, Ser. No. 323,097
Claims priority, application Sweden, Sept. 19, 1972, 12075/72; Oct. 2, 1972, 12696/72
Int. Cl. B60r 21/10
U.S. Cl. 280—150 AB 25 Claims



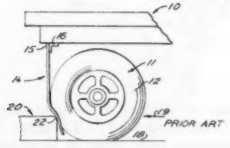
At violent retardation, acceleration, compressing or twisting of a vehicle a transversely extending, gastight envelope by means of a first pressurized gas source is thrown backwards from a front position towards the body of the passenger so as to roll upwards over the body into a rear position, said hose during said backwards movement by means of a second pressurized gas source being inflated into a pad-like envelope of substantially larger volume catching the body and firmly securing the passenger to the seat.

3,822,897

MUD FLAP

Gerald Heath, 8775 Hudson St., Vancouver, British Columbia, Canada

Filed Mar. 7, 1972, Ser. No. 232,418
Int. Cl. B62d 25/16
U.S. Cl. 280—154.5 R 1 Claim



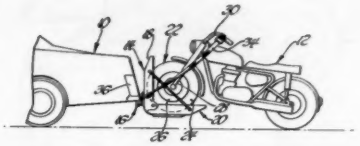
Mud flap for use by wheeled vehicles, flap having an upper portion secured to the vehicle rearward of wheel and a lower portion secured to upper portion by weakened portion. Weakened portion has lower tensile strength than remaining portion of flap so that, when vehicle reverses against curb and flap is trapped between curb and wheel, tensile stress in flap causes it to tear along weakened portion. Weakened portion has a cross-sectional area reduced from that of remaining portion of flap by providing a groove, a row of perforations, or by joining the upper portion to the lower portion by a plurality of threads.

3,822,898

TOWING APPARATUS FOR A CYCLE AND THE LIKE

William M. Brownlie, 1201 Falcon, Dearborn, Mich. 48128

Filed July 18, 1973, Ser. No. 380,132
Int. Cl. B60p 3/06
U.S. Cl. 280—402 10 Claims



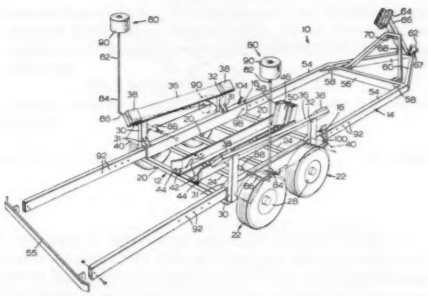
A towing appparatus for towing a vehicle such as a motorcycle behind another vehicle such as an automobile has a pair of channel-like members, adapted for the reception therein of a wheel of the towed vehicle, pivotally connected to each other so as to be swingable toward each other to a closed position when not towing a vehicle, and swingable away from each other to a position for the reception therebetween of a wheel of a vehicle being towed.

3,822,899

BOAT TRAILER

Ramon Allan Slack, 10 Breadalbane St., Toronto 5, Ontario, Canada

Filed June 26, 1972, Ser. No. 266,419
Int. Cl. B60p 3/10
U.S. Cl. 280—414 R 16 Claims



A boat trailer which is adjustable in length to facilitate launching when extended and trailing when contracted. The trailer consists of a boat supporting carriage member which is slidably mounted on a towing frame. The boat carriage preferably has a pair of longitudinally extending tubular sleeve members and the towing frame includes at least two longitudinally extending beam members which are slidably mounted in the sleeve members of the carriage.

3,822,900

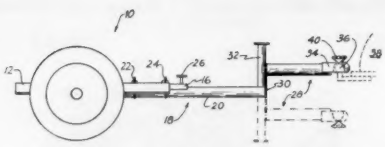
ANTI-THEFT TRAILER HITCH

Fred M. Peterson, 3233 Caddo Trail, Fort Worth, Tex. 76135

Filed Dec. 11, 1972, Ser. No. 313,627
Int. Cl. B60d 7/00
U.S. Cl. 280—507 10 Claims

An anti-theft hitch for trailers and other towable vehicles which employ a ball and socket or equivalent hitch, wherein a ball or like member normally attached to the prime mover at

its bumper or rear frame fits into a socket or other receptacle attached to the frame of the towed vehicle and is secured thereto for towing, the socket member on the towed vehicle being rotatively reversible and lockable in the reversed position so that it cannot mate with the prime mover ball.



3,822,901

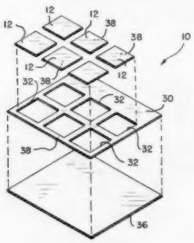
HIDDEN MESSAGE APPARATUS

Jack Seidman, Philadelphia, Pa., assignor to Spot-O-Gold Corporation, Philadelphia, Pa.

Filed Nov. 13, 1972, Ser. No. 306,236

Int. Cl. B42d 15/00

U.S. Cl. 283—6 **11 Claims**



A hidden message apparatus comprising at least one element having a first message zone with a first message disposed therein and removable opaque means covering said message. A second element having a second message zone and a second message disposed therein. The second message is the same as the first message. Means are provided for releasably coupling the first element to the second element so the content of the first message will be known until the first element is separated from the second element.

3,822,902

CONNECTION FOR PIPE JOINTS

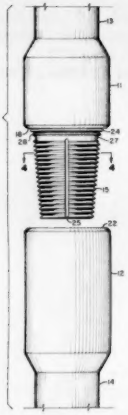
William C. Maurer; Joe K. Heilhecker, and Everett H. Lock, all of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.

Filed Dec. 13, 1972, Ser. No. 314,871

Int. Cl. F16l 21/02

U.S. Cl. 285—94 **8 Claims**

A threaded connection for tubular goods includes an externally threaded pin member, an internally threaded box member, a resilient seal ring positioned between said pin and box members to provide a fluid seal therein, and a passage formed in either the pin or box members for conducting thread lubricant or other liquid away from the seal ring as the pin and box members are screwed together.



3,822,903

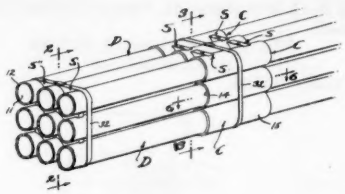
MULTI-CORE UNDERGROUND CONDUIT-MANHOLE SYSTEM

Arthur O. McNeely, Redondo Beach; Wiley T. Kennedy, Santa Ana, and Paul Huska, Los Angeles, all of Calif., assignors to MacKenhus Corporation, Santa Ana, Calif.

Filed Mar. 31, 1972, Ser. No. 239,904

Int. Cl. F16l 39/00

U.S. Cl. 285—137 R **20 Claims**



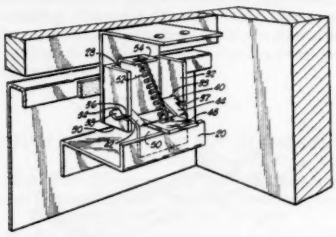
The joinder of ducting such as underground systems of multi-tube form, comprised of a coupler assembly receiving the complementary ends of one or more continuing duct sections and bonded thereto and the sections thereby connected together by means of liquid material hydraulically applied under pressure to enter an annulus around each duct to be coupled, and wherein the application of and solidification of said material purges each said annulus while adhereing to bond the coupler and ducts and thereby hermetically sealing each joinder; and the system being characterized by its adaptability to an array consisting of a multiplicity of ducts cooperatively arranged by means of a saddle having a manifold simultaneously distributing said liquid material to the coupler connections; there being process support means and a kit involved in the method of coupling by which the bonding material is hydraulically injected with heat applied as required.

3,822,904

CONCEALED LATCH ASSEMBLY

John Allan Peterson, Oklahoma City, Okla., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed Mar. 26, 1973, Ser. No. 344,783
Int. Cl. E05c 19/02
U.S. Cl. 292—78 6 Claims



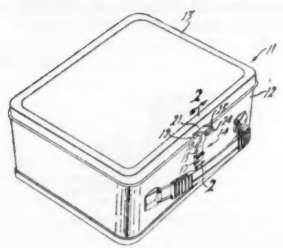
A low cost latch assembly, which cannot be seen from the exterior of a cabinet in which it is used, consisting of an over-center latch attached to the cabinet and an actuating member attached to the inside of a cabinet door. The over-center latch includes a rotatable latch plate with two perpendicular arms and a spring for biasing the latch plate to extremes of an arc. The actuating member pushes on one perpendicular arm to force the latch plate over center as the door is closed. The second perpendicular arm is rotated into a latching position behind the actuating member. The actuating member also forces the latch plate back over center to an unlatched position as the door is pulled open.

3,822,905

PLASTIC LATCH

Vernon D. Bell, Westerley, R.I., assignor to King-Seeley Thermos Co., Norwich, Conn.

Filed Oct. 16, 1972, Ser. No. 297,626
Int. Cl. E05c 19/06
U.S. Cl. 292—87 2 Claims



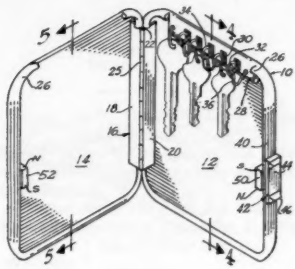
A lunch kit or the like embodying an improved and simplified molded plastic latch for retaining the cover in a closed position. The plastic latch is formed from a single element having a base portion and a latch portion that is integrally connected to the base portion by a shank portion. A handle portion is also carried by the shank portion contiguous to the latch portion for deflecting the shank portion as a cantilever beam to move the latch portion to a released position.

3,822,906

MAGNETIC CLOSURE

Alvin M. Gaines, 219B Shadow Park, Norcross, Ga. 30071

Continuation of Ser. No. 71,696, Sept. 14, 1970, Pat. No. 3,716,091. This application Nov. 27, 1972, Ser. No. 309,893
Int. Cl. E05c 19/16; B65d 45/00
U.S. Cl. 292—251.5 3 Claims



A magnetic closure for keycases, pocketbooks, wallets, and other containers which provides positive opening as well as a closing by means of magnets with respective North and South poles so positioned as to bring opposite poles into proximity for positive closing and like poles into proximity for opening. One panel of the keycase or other container is provided with the sliding magnet and another panel of the keycase has the fixed magnet whereby manually sliding one with respect to the other causes the magnet to assume the position of similar or dissimilar polarity.

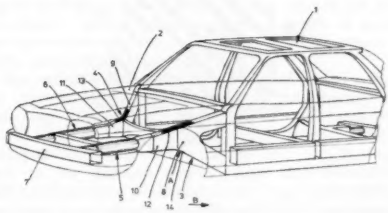
The keys are held by fixed loops and a flexible wire.

3,822,907

BUMPER ARRANGEMENT

Hermann Appel, Berlin; Horst-Rudiger Majer, Wolfsburg, and Conrad Oehlerking, Braunschweig, all of Germany, assignors to Volkswagen werk Aktiengesellschaft, Wolfburg, Germany

Filed July 9, 1973, Ser. No. 377,450
Claims priority, application Germany, July 11, 1972, 2233972
Int. Cl. B60r 19/04; F16f 7/12
U.S. Cl. 293—63 10 Claims



A bumper system has at least one element for absorbing impact energy by deflection in a direction generally parallel to the direction of the impact. The element has a terminal energy-absorption value beyond which additional energy is not absorbed and further deflection does not occur. The bumper system also includes a mounting support that is used to join the element to the object to be protected and that is capable of asymetrical energy-absorbing deformation so that, upon receipt by the bumper system of an impact having an energy value greater than the terminal energy-absorption value of the element and after full deflection of the element, the fully-deflected element is rotated through an angle of at least 90°.

3,822,908

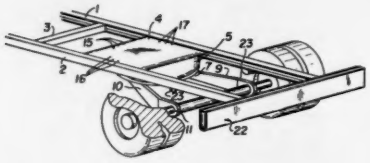
AIR SUSPENSION WITH TAPERED AIR BAG

Rene Gouirand, New York, N.Y., assignor to Joseph Mercadante, Greenwich, Conn.

Division of Ser. No. 110,704, Jan. 28, 1971. This application Nov. 6, 1972, Ser. No. 304,219

Int. Cl. B60r *19/00*

U.S. Cl. 293—68 **3 Claims**



An air bag having a tapered cross-section in the direction of the length of the vehicle has one surface mounted to the vehicle frame. The other surface of the air bag contacts a suspension member which extends outward (as a lever member) from the greater cross-sectional portion of the air bag and the vehicle axle is attached thereto. In one embodiment the suspension member is flexibly coupled to the chassis by flexible cables, or the like, including side cables which prevent side-sway of the vehicle.

3,822,909

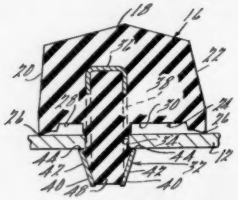
BUMPER STRIP

Seabourn S. Livingstone, Grosse Pointe Farms, and Herbert H. Hillman, Marysville, both of Mich., assignors to St. Clair Rubber Company, Marysville, Mich.

Filed Aug. 28, 1973, Ser. No. 392,193

Int. Cl. B60r *19/06, 19/08*

U.S. Cl. 293—71 R **10 Claims**



An impact-absorbing bumper comprised of a strip composed of a resilient material and a plurality of fasteners embedded at spaced intervals therealong which project outwardly of the rear mounting face of the strip. Each fastener is comprised of a plurality of outwardly projecting engaging legs which are biased in a mutually separating direction and into interlocking engagement with the edges of an aperture provided in a mounting plate on which the bumper strip is to be installed. The separating bias on the engaging legs of each fastener is primarily achieved by an integrally formed rearwardly projecing portion of the resilient material which extends between the inner surfaces of the engaging legs, thereby preventing inadvertent disengagement of the fasteners from the mounting plate as a result of shocks and vibrations.

3,822,910

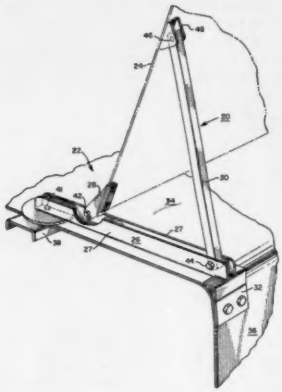
UNIVERSAL WIND DEFLECTOR SUPPORT SYSTEM

Nathaniel C. Wiley, Jr., Weston, Conn., assignor to Rudkin-Wiley Corporation, Stratford, Conn.

Filed June 28, 1973, Ser. No. 374,776

Int. Cl. B60j *1/04*

U.S. Cl. 296—1 S **7 Claims**



A wind deflector support system universally applicable for mounting to the roof of all different types of tractors and cabs is provided by employing a support system comprising a deflector bracket, a support column, a cab bracket, and an arcuately adjustable channel iron member. By providing a channel iron member having one end that incorporates a pivotable hemispherically articulating joint with the other end attachable to a rotatable bracket, a universal wind deflector support system is provided which is capable of being mounted to any type of cab configuration presently on the market, along with any type of cab configuration in the forseeable future.

3,822,911

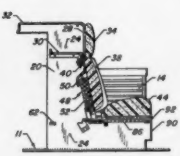
CONVERTIBLE SEAT, SUPPORT PLATFORM AND STORAGE COMPARTMENT FOR MOTOR VEHICLE

Arthur O. Radke, Milwaukee, and Shawn H. Eimen, Cudahy, both of Wis., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 24, 1972, Ser. No. 309,570

Int. Cl. B60n *1/10*

U.S. Cl. 296—66 **5 Claims**



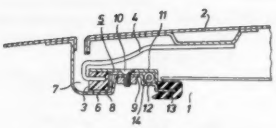
Convertible seats for a van-type motor vehicle is attached to the vehicle in such a way that it may be easily removed when desired. The unit includes a base portion for supporting a seat cushion and rearwardly extending upright side portions. The side portions are connected at their upper edges by top and front wall portions which cooperate with a rear seat cushion attached to the front of the uprights below the front wall portion to define a storage compartment behind the seat. The front seat cushion is pivotally mounted to the base so that it may be flipped forwardly to define a flat support platform. A two sectioned rear flat support platform is also pivotally

mounted behind the rear seat cushion in such a way that the rear support sections can be held in a generally vertical position when not being used, thus permitting the storage compartment to accommodate tall articles. Alternatively, the rear sections can be placed in a horizontal position with the rear section either being folded under the front section or extended outwardly therefrom to provide a shallow or deep lower shelf in the storage compartment. All of the support surfaces are on the same level so that when the seat back is removed the front and rear support platforms can be used together to support long items or to form a flat base suitable for supporting a mattress and bedding. The various front and rear support surfaces are usable independently, irrespective of whether or not the rear seat cushion is in position separating the front and rear portions of the unit.

3,822,912
CABLE DRIVE AND GUIDE FOR AUTOMOBILE SLIDING ROOFS

Horst Bienert, Max-Klingerstr. 15, 8035 Gauting, Germany, assignor to Webasto-Werk W. Baier KG, Stockdorf, Germany

Filed Apr. 3, 1973, Ser. No. 347,369
Claims priority, application Austria, Apr. 4, 1972, 2886/72
Int. Cl. B60j *7/00*
U.S. Cl. 296—137 G **12 Claims**

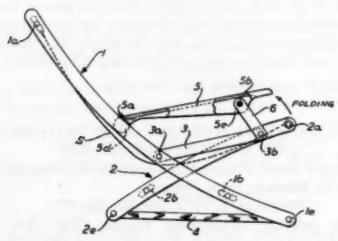


A cable drive and guide system for rigid automobile sliding roofs where the roof opening frame includes on each side a rain channel, a longitudinal ridge profile, and a guide profile for the push-pull-type drive cable, a removable upper guide profile forming part of the sliding roof guide on one side of the ridge profile and part of the drive cable guide on the other side of the ridge profile.

3,822,913
ADJUSTABLE FOLDING CHAIR

Jack Raver, 2400 Sedgwick Ave., New York, N.Y. 10468

Filed June 14, 1972, Ser. No. 262,795
Int. Cl. A47c *4/00*
U.S. Cl. 297—18 **3 Claims**



Folding chair adjustable for different sitting-rocking and reclining positions comprising two generally rectangular frames coupled by links for relative scissor-like rocking movement and folding, a flexible web seat, with means for easily removing and changing the length thereof and an adjustable frame-positioning strap interconnecting the frame legs, the frames and links being spaced by laterally offset members to prevent pinching of the user's hands during relative movement of the frames and links.

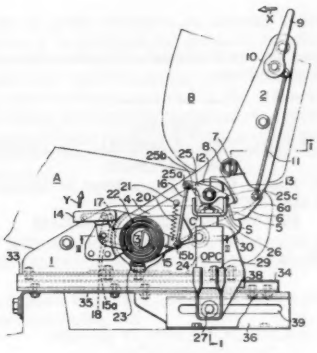
ERRATUM

For Class 297—195 see:
Patent No. 3,822,917

3,822,914
RECLINING SEAT

Teiji Iida, and Noboru Yoshimura, both of Tokyo, Japan, assignors to Toyota Jisosha Kogyo Kabushiki Kaisha, Toyota-shi, Aichi-ken, Japan

Filed Oct. 3, 1972, Ser. No. 294,504
Claims priority, application Japan, Oct. 8, 1971, 46-79218
Int. Cl. A47c *1/24*
U.S. Cl. 297—355 **2 Claims**



The present invention relates to a reclining seat wherein a latch plate is pivotably mounted on an outer side of seat-back frame, and a releasable means is provided for fixing and unfixing the latch plate with respect to the seat-back frame, and an oil cylinder with a variable effective length is provided between a shaft mounted on said latch plate and a pin formed at the bottom of a seat cushion frame.

The present reclining seat allows the adjustment and set of the angle of inclination of a seat-back continuously over a wide range of angles, and permits the release of said set in a simple way when the seat back is to be inclined either forwardly or backwardly. When the seat back is to be returned back to the previous position from such forwardly or backwardly inclined position, it is only required to return the seat-back as it will automatically lock in the previously set position.

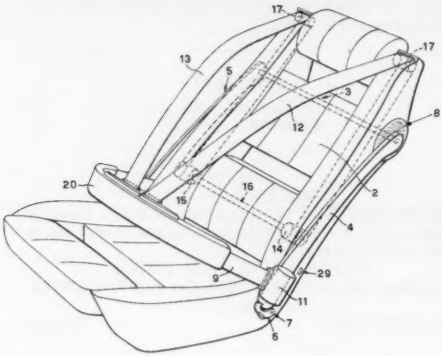
3,822,915
SAFETY SEAT BELT HAVING FOUR FASTENING POINTS, FOR A MOTOR CAR SEAT

Ivo Colucci, Milan, Italy, assignor to Alfa Romeo S.p.A., Milan, Italy

Filed May 4, 1972, Ser. No. 250,170
Claims priority, application Italy, May 6, 1971, 24189/71
Int. Cl. A47c *31/00;* **A47d** *1/00;* **B60r** *21/10*
U.S. Cl. 297—389 **12 Claims**

A safety belt having four anchoring points in which there is provided an abdominal strap connected to a swinging frame

pivoted on the seat's sidewalls, and two paired shoulder straps which are connected to sliding members placed on the abdominal strap and are connected at the other end, to the top corners of the seat back.

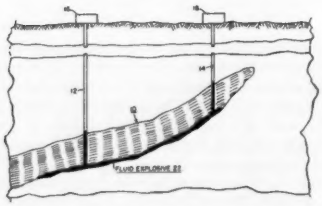


3,822,916

IN-SITU EXTRACTION OF MINERAL VALUES FROM ORE DEPOSITS

Charles H. Jacoby, Dalton, Pa., assignor to Akzona Incorporated, Asheville, N.C.

Filed Nov. 16, 1972, Ser. No. 307,144
Int. Cl. E21b *43/28*
U.S. Cl. 299—4 **8 Claims**



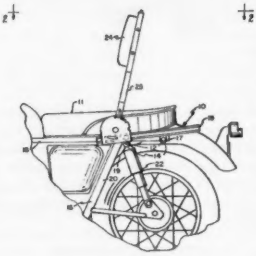
There is disclosed a method for the in-situ extraction of metal/mineral values from metalliferous and/or nonmetallic ores occurring in substantially impermeable ore deposits of the laminar gneiss or schist or conglomerate types, or the like. The invention is particularly adaptable for example to the mining of copper and nickle and manganese carbonate or sulphide type ores. In accordance with this invention, the geologic formation containing the ore is first penetrated by two or more, suitably spaced-apart openings, such for example bore holes extending from the earth's surface to the bottom level of the deposit. There is then established a liquid-permeable "-base" fractured zone interconnecting the lower ends of the bore holes within the ore body by means of a hydraulic-fracturing technique such as described in my U.S. Pat. No. 3,064,957; the base fracture being propped open by means of any suitable agent such as described for example in U.S. Pat. No. 2,645,291. An explosive material of liquid or slurry form is then flowed into the cavitated U-tube system comprising the bore holes and the "base" fractured zone, thereby replacing the hydraulic fracturing fluid by an explosive material of fluidized powder or liquid or slurry form. This operation is conducted under only substantially the earth's-surface-ambient atmospheric pressure conditions, thereby eliminating serious prior art hazards. The explosive is then detonated so as to fracture the overlying ore body according to the petrofabrics of the ore deposit and/or the stress patterns of the mineral constituents thereof. The ore body is thereby rendered permeable, and a suitable solvent/reactive material (such as sulphuric acid in the case of the metal carbonates) for recovery of the desired value-containing salt solution is then caused to percolate through the permeabilized ore deposit. The invention also contemplates a specific geometry for the solvent/reactive flow pattern through the ore body, featuring a vertical migration and "floating" of the solvent/reactant on top of the more metal concentrated fraction of the product flow stream; thereby maintaining an optimum reactant-to-ore status progressively upwardly within the lateral confines of the ore body. If sulphide type ores are involved oxygen or air and water may be employed as an in-situ solvent/reactant.

3,822,917

ADJUSTABLE BACKREST FOR A SEAT FOR CYCLES

Samuel H. George, 44 Schiverea Ave., Freehold, N.J. 07728

Filed May 22, 1972, Ser. No. 255,257
Int. Cl. B62j *1/00*
U.S. Cl. 297—195 **4 Claims**



An adjustable backrest for a motorcycle seat. Said backrest is slideably adjusted between two parallel tracks and said tracks are affixed to the frame of the motorcycle on either side of the buddy seat. The backrest is movable from a position near the front of the long buddy seat to the extreme rear of the seat. The backrest is supported by two arms that extend downward and are slidably affixed to the two parallel tracks. The ends of the arms are pivotally affixed to permit changing the angle of the backrest with relation to the motorcycle seat and a locking arrangement may be employed so that the backrest may be locked in any desired angular position.

3,822,918

DEVICES FOR TRANSPORTING OBJECTS OVER LONG DISTANCES BY INDUCED AIR

Jean Jungers, Paris, France, assignor to Ste Nouvelle des Ventilateurs G. Mouzon, Paris, France

Filed Sept. 6, 1972, Ser. No. 286,777
Claims priority, application France, Sept. 27, 1971, 71.34703
Int. Cl. B65g *51/02*
U.S. Cl. 302—2 R **9 Claims**

This invention relates to an improvement in devices for transporting objects over long distances by induced air, par-

ticularly in injector members having a section in the form of a Venturi tube, wherein inside the injector member there is

disposed a means for guiding the objects, constituted by a slide whose shape is adapted to the section of the objects to be transported.

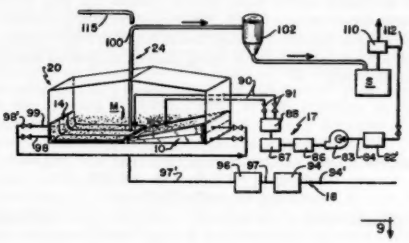
3,822,919
APPARATUS AND METHOD FOR FLUIDIZING AND HANDLING PARTICULATES

Lars C. Strom, San Francisco, Calif., assignor to Kaiser Industries Corp., Oakland, Calif.

Continuation-in-part of Ser. No. 163,776, July 9, 1971 abandoned. This application Apr. 2, 1973, Ser. No. 346,816

Int. Cl. B65g *53/16*

U.S. Cl. 302—47 **11 Claims**



An improved apparatus and method for fluidizing and handling particulate material, wherein separate means are employed to change the angle of inclination of the main support for the particulate material and to fluidize the particulate material.

3,822,920
TRACTOR-TRAILER ELECTRICAL CONNECTION SYSTEM FOR WHEEL BRAKE ANTILOCK-EQUIPPED TRACTORS

Walter Bernhardt, Feilbach, and Willy Paule, Stuttgart, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

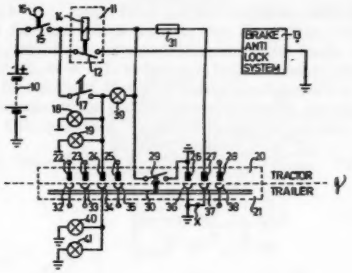
Filed Aug. 14, 1973, Ser. No. 388,098

Claims priority, application Germany, Sept. 11, 1972, 2244511

Int. Cl. B60t *8/00*

U.S. Cl. 303—20 **11 Claims**

To automatically disable the tractor brake antilock system if a trailer is connected thereto which does not have an antilock system (but leaving the antilock system intact if the tractor operates separately, or with a brake antilock-equipped trailer), a control relay is provided which is energized through a connection in the separable tractor-trailer electrical system connector, the connector including in the trailer portion thereof a separate terminal which is either grounded, or not, depending upon whether the trailer is equipped with an antilock system or not; if the trailer is equipped with an antilock system, a ground connection is established to the relay,



through the trailer connector, to energize the relay. If the trailer is not so equipped, the ground connection is broken and the relay remains de-energized. To permit energization of the relay if the tractor is operated independently, either a normally closed switch is included in the connector which is opened when the connector is engaged, or a normally closed relay is provided on the tractor, which is energized by current flow to the trailer, for example upon operation of the brake lights thereof.

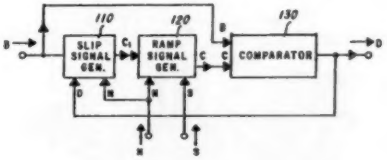
3,822,921
SLIP AND RAMP SIGNAL GENERATOR AND COMPARATOR FOR A VEHICLE SKID CONTROL BRAKING SYSTEM

James J. Jones, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 17, 1972, Ser. No. 272,581

Int. Cl. B60t *8/10*

U.S. Cl. 303—21 BE **7 Claims**

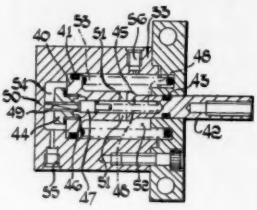


Disclosed is a slip and ramp generator and comparator circuit for selectively activating a brake control mechanism to inhibit vehicle braking action in a vehicle skid control braking system. The disclosed circuit includes a slip signal generator responsive to a first signal representing vehicle wheel speed for selectively generating a slip signal proportional thereto, and a ramp signal generator proportional to the slip signal for generating a ramp signal representing vehicle land speed. The circuit also includes a comparator responsive to the first signal and to the ramp signal for selectively generating a gating signal indicative of the condition wherein vehicle wheel speed is less than vehicle land speed. Upon this condition the gating signal activates a brake control mechanism to inhibit vehicle braking action.

3,822,922
BRAKING SYSTEMS

Brian Colin Pagdin, Sutton Coldfield, England, assignor to GKN Transmissions Limited, Erdington, Birmingham, England

Filed Jan. 5, 1973, Ser. No. 321,472
Claims priority, application Great Britain, Jan. 5, 1972, 435/72
Int. Cl. B60t 8/14
U.S. Cl. 303—24 A 4 Claims

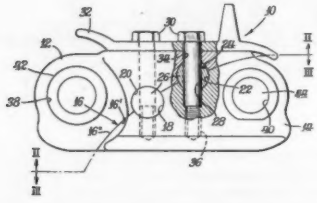


An anti-skid braking system for a vehicle in which a control mass is mounted on the vehicle chassis to be movable relative thereto and is arranged to control the servo assistance in dependence on the position of the control mass relative to the chassis. The greater the retardation the greater the servo assistance and the less the retardation the less the servo assistance. The control mass may be the engine and gearbox of the vehicle which is mounted resiliently on the chassis. The servo assistance can be obtained directly from the control mass or by a servo pump whose output is metered by the control mass.

3,822,923
MASTER TRACK LINK

Robert N. Stedman, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 30, 1972, Ser. No. 310,870
Int. Cl. B62d 55/20; F16g 13/06
U.S. Cl. 305—58 10 Claims

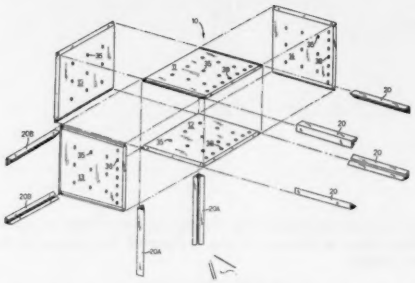


A two-piece master track link for an articulated, shoe-supported, heavy-duty track chain wherein the master link is parted along an oblique, longitudinally extending juncture of separation, the complementing surfaces of each portion of said link contain at least one arcuate notch, said notches registering to form a seat for a cylindrical key capable of maintaining alignment and absorbing longitudinal shear loads occurring between the two link portions, each key having relieved areas to allow passage of a bolt extending through the track shoe and one link portion of the other link portion to threadably secure the master link portions, key, shoe, and chain ends to form an integral chain assembly.

3,822,924
MODULAR STORAGE UNIT AND STRUCTURES FORMED THEREFROM

David A. Lust, 1829 N. Oakland, Milwaukee, Wis. 53202

Filed Mar. 2, 1973, Ser. No. 337,313
Int. Cl. A47b 47/00; F16b 12/00
U.S. Cl. 312—111 23 Claims

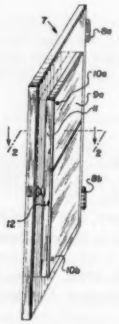


A modular knock-down storage unit, usable alone or with one or more similar units, comprises rectangular wall members or panels, each bevelled and grooved along certain edges to accommodate removable locking strips which secure adjacent panels together. A given unit may comprise four, five or six panels. Each panel is provided with several rows of regularly spaced dowel-receiving holes therethrough which are available to support optionally usable long dowels inside the unit between opposite walls thereof which serve as space dividers. The dowel-receiving holes are also available to support optionally usable short dowels outside the unit which serve to secure adjacent units together in horizontal, vertical, back-to-back and other arrangements. Small drawers are provided for insertion in a unit, being slidably supported therein on long dowels.

3,822,925
UTILITY-DOOR STORAGE CONTAINER

Martin M. Osroff, 2442 E. 26th St., Brooklyn, N.Y. 11235

Filed Oct. 6, 1971, Ser. No. 186,992
Int. Cl. A47b 67/02
U.S. Cl. 312—242 2 Claims



In a preferred embodiment, a door of annular frame structure, the door being comparable to a house-dwelling door, and instead of having solid panels therein, the annular door frame having its inner annular surfaces receivable of a removable storage container mountable within the annular through space

of the annular frame, mountable such that the storage container extends about equidistantly beyond opposite faces of the annular door-frame, the storage container having at least one side thereof openable as a door to the storage container for access into the storage container, with the storage container including structures for removably mounting a plurality of shelves therein and additionally including means for removably mounting a coat hanger support for hanging coat hangers for hanging coat hangers thereon, and including the coat hanger support itself and the removable shelves, the storage container being composed of a light-weight fire-resistant plastic.

3,822,926

METHOD TO CORRECT LACK OF EXTINCTION IN POLARIZING MICROSCOPE

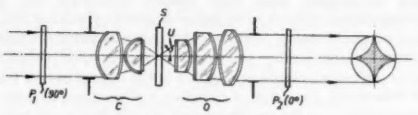
Jean-Pierre Dalbera, Bagneux, and Georges Nomarski, Bourg La Reine, both of France, assignors to Etablissement Public: Agence Nationale de Valorisation de la Recherches(ANVAR), Tour Aurore, Courbevoie, France

Filed Aug. 11, 1972, Ser. No. 279,749

Claims priority, application France, Aug. 19, 1971, 71.30286

Int. Cl. G02b *27/28*

U.S. Cl. 350—14 **17 Claims**



The invention relates to a method for correcting the extinction faults of the polarizing microscope.

This method lies in decreasing the rotation of the polarization plane by coating at least one of the surfaces of the optical systems with at least one thin layer, having the most uniform geometrical depth allowed by the actual state of the art at least in the annular peripheral field of the surfaces included between 0.7 times and one times the useful diameter of the lenses. The index and the depth are calculated so as to compensate at least partially for the rotation of the polarization plane while limiting the phase displacement due to the anisotropy of transmission factors introduced by the thin layer(s) to a few degrees at the edge of the exit port. An antiglare action of these layers is maintained by ensuring a reflection factor appreciably lower than that of bare glass.

3,822,927

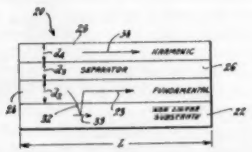
PHASE MATCHED OPTICAL WAVE GENERATOR FOR INTEGRATED OPTICAL CIRCUITS

Frits Zernike, Rowayton, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Nov. 16, 1972, Ser. No. 307,065

Int. Cl. G02b *5/14*

U.S. Cl. 350—96 WG **12 Claims**



A phase matched optical wave generator is described wherein a harmonic optical wave is generated by the interaction of a fundamental optical wave with a non-linear polarizing material. The harmonic wave is coupled to a thin-film optical waveguide which is tuned to the wavelength of the harmonic optical wave. The separation of the fundamental and harmonic waves in different optical waveguides facillitates phase matching over the length of the interacting region to produce a harmonic of enhanced intensity. Several embodiments are shown and described.

3,822,928

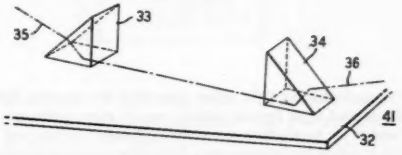
THIN FILM LIGHT GUIDE

Gerald Smolinsky, New Vernon; Ping King Tien, Chatham Twp., Morris County, and Michael Joseph Vasile, North Plainfield, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation of Ser. No. 168,033, Aug. 2, 1971, abandoned. This application May 29, 1973, Ser. No. 364,502

Int. Cl. G02b *5/14*

U.S. Cl. 350—96 WG **7 Claims**



Thin film light guide circuit utilizing electromagnetic radiation comprising a defect-free, essentially homogeneous polymeric film produced by in situ polymerization of at least one monomer within a plasma discharge region.

3,822,929

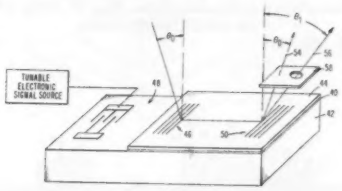
ELECTRONICALLY TUNABLE OPTICAL FILTER USING ACOUSTIC WAVES

Paul F. Heidrich, Mahopac; Lawrence Kuhn, Ossining, and Eric G. Lean, Mahopac, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 27, 1971, Ser. No. 147,486

Int. Cl. G02f *1/16*

U.S. Cl. 350—161 **4 Claims**

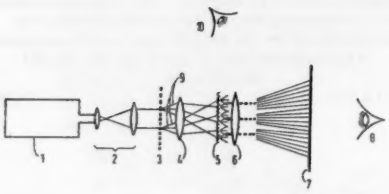


A tunable optical filter suitable for use in integrated optical circuits including the combination of a substrate having an optical waveguide such as a thin film thereon. Means such as an optical fiber or grating is provided for introducing light waves in a first mode into the waveguide. An acoustic transducer driven by a tunable electronic signal source is used to propagate acoustic waves on the surface of the waveguide. The optical and acoustic waves interact to produce another optical wave having a mode different than the original optical wave when phase matching conditions are satisfied. A mode filter is located in the waveguide to block the original optical wave and pass the second optical wave.

3,822,930
MULTICHANNEL LIGHT EFFECT GENERATOR

Nikolaos Douklias, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed Sept. 14, 1972, Ser. No. 289,058
Claims priority, application Germany, Sept. 15, 1971, 2146154
Int. Cl. G02b 5/18
U.S. Cl. 350—162 R 10 Claims

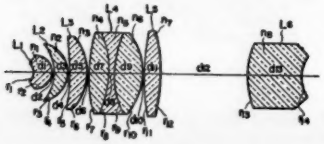


A multichannel light effect generator for creating lighting effects and light figures having one or more coherent light sources for producing one or more beams of coherent light and directing the beams onto a light effect member to produce light patterns and figures visible to an observer characterized by one or more diffraction gratings disposed between the sources and the light effect member to dissect the beams into a plurality of diffraction orders. The diffraction gratings may be either stationary or moving and the light effect members may be either stationary or moving. In one embodiment, all of the diffraction orders are projected onto one or more light effect members and in another embodiment, one or more light effect members is provided for each of the diffraction orders.

3,822,931
MICROSCOPE OBJECTIVE

Masaki Matsubara, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo-to, Japan

Filed May 23, 1973, Ser. No. 363,277
Claims priority, application Japan, May 27, 1972, 47-52799
Int. Cl. G02b 9/62, 21/02
U.S. Cl. 350—215 1 Claim

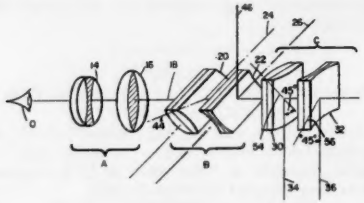


The present invention relates to microscope objectives and more particularly, to a high-magnification microscope objective with a magnification 100 and numerical aperture 0.9. Besides, for the microscope objective according to the present invention, aberrations, especially spherical and chromatic aberrations are favourably corrected by selecting the sum of powers at all lens surfaces in the lens system, i.e., $\Sigma(n_{i+1} - n_i)/r$, as a positive value with a small absolute value.

3,822,932
OPTOMETRIC APPARATUS AND PROCESS HAVING INDEPENDENT ASTIGMATIC AND SPHERICAL INPUTS

William E. Humphrey, Oakland, Calif., assignor to Humphrey Research Associates, Oakland, Calif.

Filed June 15, 1972, Ser. No. 263,329
Int. Cl. A61b 3/02; G02b 13/08
U.S. Cl. 351—17 14 Claims

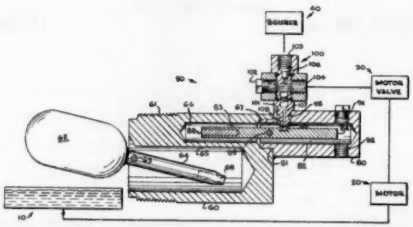


An apparatus and process for measuring optometric spherical and cylindrical optic correction to the eye is disclosed. Typically, two pairs of counter-rotating positive and negative cylindrical lenses are actually used or optically emulated. As actually used, each positive cylindrical lens is counter-rotated relative to its paired negative cylindrical lens. These counter-rotating positive and negative cylindrical lenses produce variable positive and negative cylinder power relative to two axes substantially orthogonal to the optical axis of the lens instrument. Each pair of cylinders is aligned and counter-rotated relative to the remaining pair of cylinders to generate its positive cylinder and negative cylinder along the optical axes at a non-coincident angle (preferably precisely 45° removed) from the corresponding axes of the remaining counter-rotating lens pair. By choosing preselected positions of counter-relative rotation between the paired lens elements of each pair, virtually all optically practical angles and powers of cylindrical lens astigmatism correction can be generated independent of the spherical optical properties of any ocular lens train. Provision is made for the emulation of counter-rotating lens pairs by the insertion of the lens elements having variable astigmatic and spherical powers with the aforementioned optical properties. The process includes a Cartesian coordinate plot for describing astigmatic correction with reduced error, especially at low cylinder power.

3,822,933
LEVEL CONTROL

J. Wallace Johnson, New Caney, Tex., assignor to Liquid Level Lectronics, Inc., Houston, Tex.

Filed Oct. 10, 1972, Ser. No. 295,924
Int. Cl. F16k 31/08
U.S. Cl. 251—65 7 Claims



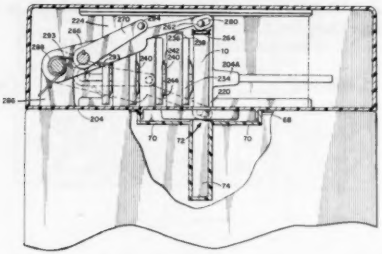
A liquid-level control, utilizing a magnet-containing float lever arm to control the fluid input to or output from a vessel.

3,822,934

CASSETTE CHANGER FOR USE WITH A PHOTOGRAPHIC PROJECTOR ADAPTED TO RECEIVE A MULTI-PURPOSE FILM HANDLING CASSETTE

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 26, 1972, Ser. No. 318,513
Int. Cl. G03b 21/04
U.S. Cl. 352—123 24 Claims



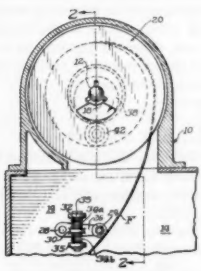
A cassette changer is provided in the form of an accessory which may be attached to a projector/processor that is configured to receive multi-purpose (self-developing) film handling cassettes. The changer includes a magazine for holding a plurality of cassettes and mechanisms for automatically moving the cassettes, one at a time, between the magazine and an operative position within the projector/processor.

3,822,935

FILM FEED MECHANISM FOR REEL PROJECTORS AND THE LIKE

George F. Krtous, Chicago, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed Dec. 29, 1972, Ser. No. 319,570
Int. Cl. G03b 1/00
U.S. Cl. 352—166 20 Claims



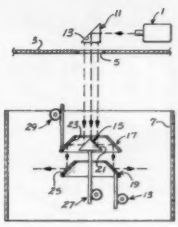
A film projection apparatus which has a film supply reel and a projection station located at a film gate where the film is moved intermittently past the projection station. A film feed mechanism is operatively associated with the film supply reel to positively feed film from the reel toward the projection station in pulsations to provide sufficient slack in the film so that the film is not required to be pulled directly off of the supply reel by the film moving mechanism at the film gate. In one form of the invention the film supply reel is intermittently rotated in response to tension in the film as it leaves the reel whereby the film feed pulsations are at a frequency which is a function of such tension. In another form of the invention eccentric cam means intermittently rotate the film supply reel whereby the film feed pulsations are at a frequency which is a function of the speed of the film feed itself.

3,822,936

OPTICAL SYSTEM FOR PANORAMIC PROJECTION

Gerald J. Troje, 1719 Centre St., Ridgewood, N.Y. 11227; Edward L. Schiavone, 10502 Insley St., Silver Spring, Md. 20902, and Joseph A. Pinzone, 3829 Bushwick Ave., Brooklyn, N.Y. 11221

Filed Feb. 23, 1973, Ser. No. 335,166
Int. Cl. G03b 21/28
U.S. Cl. 353—99 3 Claims



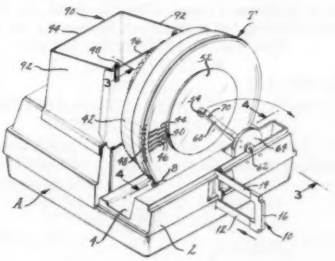
An overhead projector is combined with a reflecting prism and an assembly of frusto-conical reflecting surfaces, each of which is individually adjustable with respect to the others, to produce panoramic motion picture images on a circular screen disposed peripherally about an audience.

3,822,937

SLIDE PROJECTOR WITH MEANS TO ELIMINATE JAMS

Everett C. Kroeger, Mattoon, Ill., assignor to VueTech Corporation, Maryland Heights, Mo.

Filed July 24, 1972, Ser. No. 274,230
Int. Cl. G03b 23/02, 23/06
U.S. Cl. 353—114 10 Claims

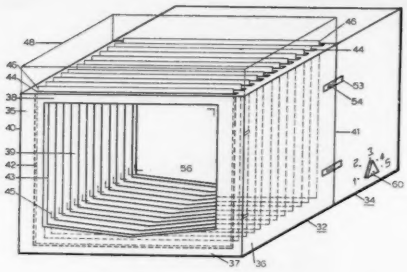


A projector capable of holding a circular slide tray and having a pinion gear which engages a rack at the periphery of the tray for indexing the tray is provided with a retaining arm which is engageable with the back face of the slide tray to prevent the rack at the periphery of the tray from backing away from the pinion gear. This insures that the rack remains fully engaged with the pinion gear and that the tray indexes completely, so that the changer arm of the projector will not jam as it moves into and out of the tray. The pinion gear rotates about a spindle, and this spindle serves as a mount for a guide shoe which receives the changer arm and confines it in the direction transverse to the direction of movement for the changer arm. Thus, the changer arm has little free motion in that transverse direction and will precisely align with the slides in the tray.

3,822,938
THREE DIMENSIONAL DISPLAY

Max Hirsch, 4810 N. 11th St., Philadelphia, Pa. 19141

Division of Ser. No. 823,392, May 9, 1969. This application Jan. 4, 1971, Ser. No. 103,510
Int. Cl. G03b *21/00*
U.S. Cl. 353—121 **11 Claims**

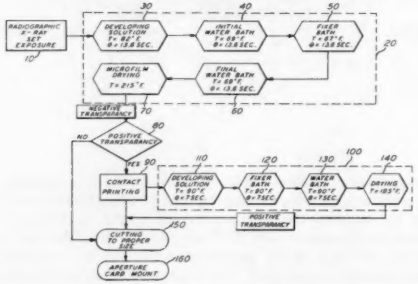


A process generates and displays representations of various entities--solid objects, scenes, graphs, lines, and points--in true three dimensional space (3D) space. A series of segments of thin transparent film are marked with respect to reference elements of the film segments to correspond to a series of sections of an entity. The segments are assembled spaced apart in corresponding sequence in an apparatus for display, aligned therein by their reference elements, and illuminated by a diffuse substantially uniform light source at one end of the sequence. The assembly of marks on the film segments can be seen from the other end of the sequence by transmitted light as a three dimensional representation of said entity. Apparatus and film segments have unique features accomodating the process of this invention.

3,822,939
METHOD FOR PHOTOGRAPHING A SET OF VARYING CONTRAST RADIOGRAPHIC X-RAYS

Stanley A. Hoffman, 4 Langdon Ln., Narberth, Pa. 19072, and David J. Paxton, 168 S. Highland, Springfield, Pa. 19064

Filed Mar. 30, 1971, Ser. No. 129,453
Int. Cl. G03b *27/02*
U.S. Cl. 355—132 **15 Claims**

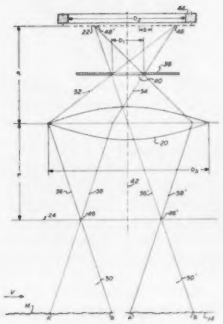

RADIOGRAPHIC X-RAY SET EXPOSURE
DEVELOPING SOLUTION T= 82° F. @= 13.8 SEC.
INITIAL WATER BATH T= 68° F. @= 13.8 SEC.
FIXER BATH T= 67° F. @= 13.8 SEC.
MICROFILM DRYING T= 215° F.
FINAL WATER BATH T= 68° F. @= 13.8 SEC.
NEGATIVE TRANSPARENCY
POSITIVE TRANSPARANCY
NO
YES
CONTACT PRINTING
DEVELOPING SOLUTION T= 80° F. @= 7.5 SEC.
FIXER BATH T= 80° F. @= 7 SEC.
WATER BATH T= 80° F. @= 7 SEC.
DRYING T= 185° F.
POSITIVE TRANSPARANCY
CUTTING TO PROPER SIZE
APERTURE CARD MOUNT

A method for photographing a set of varying contrast radiographic X-rays for mounting within openings of an aperture card or within a transparent jacket. A set of radiographic X-rays are photographed with a microfilm camera. The film is processed through a succession of developing, fixation and water baths to provide a film negative transparency. The negative may be cut and mounted on the aperture card or inserted in the jacket or a positive transparency may be formed for mounting purposes. The positive transparency is formed by passing the negative through a contact printer and then processing the resulting positive film through a series of developing, fixation, and water baths. The positive transparency is then cut to proper size and mounted on the aperture card.

3,822,940
VELOCIMETER

Lester I. Goldfischer, New Rochelle, N.Y., assignor to The Singer Company, Little Falls, N.J.

Filed Oct. 20, 1972, Ser. No. 299,316
Int. Cl. G01p *3/36*
U.S. Cl. 356—28 **6 Claims**



The present invention relates to velocity measuring devices wherein the center frequency of a pattern of backscattered energy, proportional to the relative velocity between two objects, is detected. In particular it improves the accuracy of prior art systems by desensitizing the device to variations in distance between the device and the reflecting surface. This is achieved by interposing in the receiving section of the device a limiting aperture which restricts the backscattered energy contributing to the detected pattern to that energy which remains identical as the reflected surface passes through the field of illumination of the device.

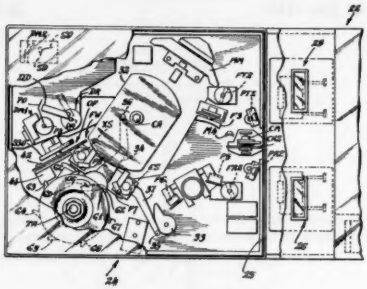
3,822,941
SCANNING MONOCHROMATORS

John M. Roche, West Cedding, and Rene C. Sawyer, Jr., Shelton, both of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Division of Ser. No. 878,102, Nov. 19, 1969, Pat. No. 3,659,945. This application Sept. 23, 1971, Ser. No. 183,150
Int. Cl. G01j *3/06, 3/18*
U.S. Cl. 356—100 **9 Claims**

A scanning monochromator includes a plurality of diffraction gratings mounted on a rotatable turret, so that each grating may be moved and precisely indexed into operative position. Each grating so positioned is angularly rotated about its axis by the same scanning arm, driven by a cam having two similar (but different) contours for producing one of two similar scanning functions for the various gratings. Preferably more interchangeable order-separating filters than gratings are included to insure complete and efficient filtering (e.g., 14 filters for 7 gratings). Both the stepping of the grating turret and of the filters (e.g., on a filter wheel) are controlled by (digital) signals, derived from the actual wavenumber being separated, as precisely read by (coarse and fine) digital encoder discs on the wavenumber scanning driving shafts (before and after a large-ratio reduction system). The digital con-

trol signals and a signal indicating the operative grating provide a readout of the wavenumber, directly usable by data processing apparatus. The closed loop digital nature of the



control signals are free of any non-systematic errors, and allow the instrument to be "indexed" to any desired wavenumber (and then "instructed" to scan to any other wavenumber automatically).

3,822,942

METHOD OF TESTING A LENGTH, ANGLE, PATH DIFFERENCE OR SPEED BY DETECTING INTERFERENCE AND APPARATUS THEREFOR

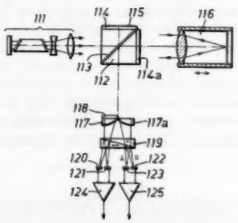
Fromund Hock, Wetzlar, Germany, assignor to Ernst Leitz GmbH, Wetzlar, Germany

Filed May 31, 1972, Ser. No. 258,297

Claims priority, application Germany, June 3, 1971, 2127483

Int. Cl. G01b *9/02*

U.S. Cl. 356—106 R **10 Claims**



A testing method utilizing detecting interference in a two-beam interferometer includes in addition to the already known steps the step of splitting the combined beam into a plurality of signal beams after the partial beams have been combined in a combining step. Means are provided for additionally influencing the relative phase angle of complementary states of polarization in the signal beams to generate quadrature signals. By the use of polarization analyzers with two output pairs, push-pull signals in quadrature are obtained. In addition it is possible to introduce corrections common to all signals by shifting the phase relation in the combined beam prior to the splitting in the signal beams.

3,822,943

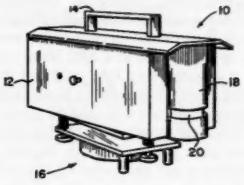
APPARATUS FOR ESTABLISHING A VISIBLE PLANE OR FAN OF LIGHT

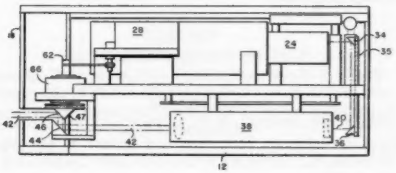
Mark T. Mason, Peterborough, N.H., assignor to New Hampshire Ball Bearings, Inc., Petersborough, N.H.

Filed Feb. 28, 1973, Ser. No. 336,697

Int. Cl. G01b *11/26*

U.S. Cl. 356—138 **4 Claims**





An apparatus for establishing a visible plane or fan of light. The plane is generated by sweeping out a beam of light produced by a laser. The apparatus is leveled by conventional means such as liquid levels, and the plane of light thus establishes a horizontal (or vertical) reference plane useful in building construction.

3,822,944

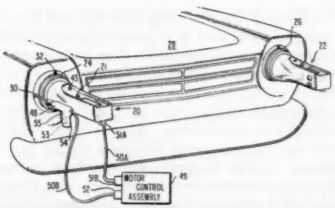
ORIENTATION DETECTION AND ALIGNMENT METHOD AND APPARATUS

Evan Leon Hopkins; Evan Lloyd Hopkins, and Jerry L. Wedel, all of Emporia, Kans., assignors to Hopkins Manufacturing Corp., Emporia, Kans.

Filed Dec. 14, 1971, Ser. No. 207,829

Int. Cl. G01b *11/26*

U.S. Cl. 356—152 **10 Claims**



A method and apparatus for detecting orientation with respect to predetermined frames of reference particularly for

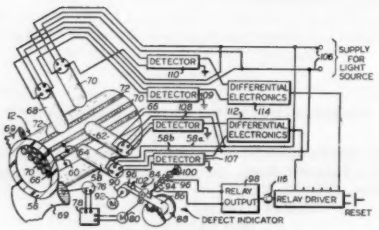
use in aligning vehicle headlamps relative to frames of reference such as the true horizontal and the longitudinal axis of the vehicle. Orientation relative to the true horizontal is detected by comparing the electrical responses of two photocells which have a peak spectral response at a predetermined wavelength and which bracket a gas bubble provided in an upwardly curved transparent housing containing both the bubble and a fluid. The photocells are illuminated through the housing by associated light emitting diodes which have peak emissivities at wavelengths matched to the peak spectral response of the corresponding photocells. Orientation relative to a predetermined axis such as the axis of the vehicle is detected by detecting the orientation of a planar surface defining two brightness zones relative to a light beam originating at a light source as a concentrated light spot and diverging along the length of the beam. When aiming headlamps, the two orientation detecting means are mounted on a pair of headlamp aiming tools which are retained on the headlamps in a predetermined orientation relative thereto. Signals related to the detected orientation are generated by the orientation detectors and are selectively applied to a headlamp position adjusting means to modify the position of the headlamps in response to the detected orientations. The appropriate orientation signal may be selected automatically in response to the position of the adjusting means.

3,822,945

OPTICAL SCANNING OF ELECTRICAL CABLE SHIELDS

Daniel E. Robinson, Metuchen, and Robert A. Schmidt, Jr., Denville, N.J., assignors to General Cable Corporation, New York, N.Y.

Filed Sept. 25, 1972, Ser. No. 291,640
Int. Cl. G01b *11/04*
U.S. Cl. 356—159 **20 Claims**



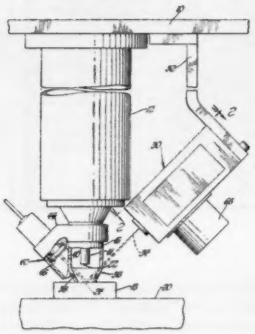
This apparatus, for detecting abnormalities in an electrical cable, has probes located at angularly spaced locations around the circumference of the cable. The probes are means for directing light beams against the surface of the cable and are light sensitive elements that pick up the light reflected from the cable surface. As the cable advances with continuous motion through a testing station, changes in the amount of light reflected operate detectors. Adjacent probes are connected with bridge circuits to make the operation independent of changes in the ambient light conditions. This feature utilizes axial as well as angular spacing of adjacent probes. A hinge sleeve for holding the probes facilitates application and removal of the test apparatus to and from the cable; and the sleeve opens automatically to pass protruberances of the cable which would strike the probes.

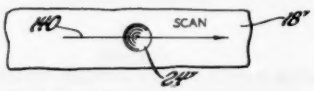
3,822,946

DIMENSIONAL MEASURING APPARATUS USING OPTICAL SCAN ESPECIALLY FOR HARDNESS TESTING

Gerald Alexander Rynkowski, Mount Clemens, Mich., assignor to Schiller Industries, Inc., Warren, Mich.

Filed Dec. 7, 1972, Ser. No. 313,087
Int. Cl. G01b *11/02*
U.S. Cl. 356—160 **25 Claims**





A noncontacting dimension measuring instrument is disclosed which utilizes an optical scanner and a pulse width measuring circuit. It is adapted to measure a dimension of a surface feature of a workpiece, especially for use as an automatic readout for a hardness testing machine. The measuring instrument utilizes a video detector, a level detector and a gating circuit which gates out or excludes unwanted video pulses. In hardness testing where the video signal may be produced by multiple reflections from a single indentation, logic means are provided to exclude the effect of reflections from the bottom of the indentation. The gate signal is produced by a gate generator in response to a start of scan detector signal which is adjusted in position and width to coincide with and slightly overlap the desired video pulse. The gate output is applied to a constant amplitude pulse generator and the time average value of the constant amplitude pulses is proportional to the dimension of the surface feature being measured.

3,822,947

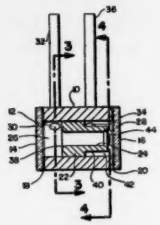
FLUID SAMPLE FLOW CELL

Roy W. Aday, Jr., 331 Holgate St., La Habra, Calif. 90631

Filed Feb. 28, 1973, Ser. No. 336,401
Int. Cl. G01n *1/10*
U.S. Cl. 356—246 **9 Claims**

A fluid sample flow cell having a body member with a cylindrical opening therethrough, the cylindrical opening being sealed at opposite ends with transparent windows. An insert having an axially extending aperture therethrough is snugly fitted within the cylindrical opening, the end surfaces being displaced from the transparent windows to define an entrance chamber and an exit chamber respectively. The entrance chamber is provided with an inlet port within the body member, the inlet port being disposed parallel to and displaced from the diameter of the cylindrical opening. The exit chamber is provided with an exit port within the body

member, the exit port being displaced from and parallel to the diameter of the cylindrical opening. The insert is provided



with an annular portion extending into the exit chamber, the exit port communicating with the exit chamber in proximity to the outer surface of the annular portion.

3,822,948

VISCOUS MATERIAL APPLICATOR, ESPECIALLY PAINT APPLICATOR

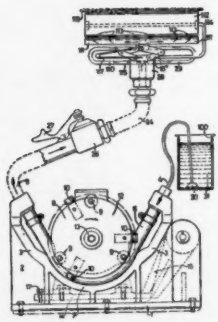
Alfons Handl, Friedrichshafen, Germany, assignor to Fa. Rugel & Lutz Maschinenfabrik

Filed May 22, 1972, Ser. No. 255,759

Claims priority, application Germany, Dec. 16, 1971, 2162455; Mar. 7, 1972, 2210834; Feb. 2, 1972, 2209261

Int. Cl. B43k *5/02*; F04b *3/08*; F24b *45/06*

U.S. Cl. 401—146 **20 Claims**



A so-called hose or peristaltic pump is designed so that the pump itself limits the maximum pressure of the viscous liquids or the like delivered therefrom. In one embodiment, the peristaltic pump and its accessories, such as the driving motor, are mounted on a rocker arm pivotally supported adjacent one end by a base carrying a circularly curved support member engageable with the hose, so that pinching rollers on a roller carrier forming part of the pump compress the hose against this circularly curved member. The weight of the pump and its accessories constitutes a pressure regulating means. In other embodiments of the invention, the pinching rollers are spring biased radially outwardly so that, responsive to excessive pressure, they will move inwardly against the spring bias. The spring bias may be applied directly to the axles for the pinching rollers or to pivoted levers on which the pinching rollers are mounted.

3,822,949

BALL POINT PEN BACK END CLOSURE

Franklin Dick, New York, N.Y., assignor to Dart Industries Inc., Los Angeles, Calif.

Filed Aug. 3, 1970, Ser. No. 60,318

Int. Cl. B43k *7/02*

U.S. Cl. 401—217 **8 Claims**

A pen plug particularly useful in ballpoint pens as a stopper to prevent back leakage of ink from the ink reservoir of such pens and yet function to allow passage of air into the pen interior. Such plugs include a plurality of substantially continuous synthetic filaments such as cellulose acetate, natural fibrous threads and synthetic filaments or mixtures of differing synthetic filaments encased in a plastic sheath.

3,822,950

FILE FOLDER PAPER FASTENER

Coleman R. Chamberlin, P.O. Box 84, Windsor, N.Y. 12550

Filed Mar. 26, 1973, Ser. No. 344,849The portion of the term of this patent subsequent to Dec. 19, 1989, has been disclaimed.

Int. Cl. B42f *3/06*

U.S. Cl. 402—15 **3 Claims**

In a preferred embodiment of the invention, a paper sheet holder composed of a rigid strip having a hole in each of opposite ends of a small diameter and each hole having spirally twisted thereinto a base end of a spiral coil spring, the opposite end of each spring having at least the last coil thereof twisted to serve as a hook coil for engaging the hook coil of the other spring, each of the two coil springs having a diameter greater than its respective hole into which it is twisted, and each spring being threaded though aligned hole of stacked sheets of paper having two holes spaced one from the other at opposite ends of the paper sheets, with the under side of the springs-mounted strip having a masking surface adhered thereto with a sheet rigid backing leaf mounted to the masking materials exposed surface.

3,822,951

DRIVE SHAFT COUPLER

James H. Bornzin, La Grange, Ill., assignor to International Harvester Company, Chicago, Ill.

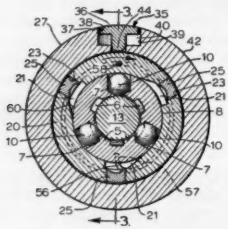
Filed May 26, 1972, Ser. No. 257,403

Int. Cl. F16d *1/00*

U.S. Cl. 403—316 **6 Claims**

A drive shaft knuckle coupler having a hub with a splined shaft-admitting bore and a series of locking detents pocketed in radial openings in the hub. The detents project into the bore to lock into an annular groove in the shaft. A cam ring is

rotatable about the hub and has relieved areas alignable with the detents to permit exit of the detents from the bore to release the shaft. An outer ring with a latch is provided to releasably lock with the cam ring and locate it in release and set positions.



3,822,952

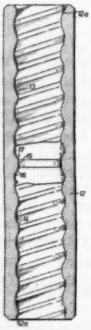
DRILL ROD COUPLING

Ernst Lennar Johansson, and Karl Lennart Gosta Lumen, both of Sandviken, Sweden, assignors to Sandvik Aktiebolag, Sandviken, Sweden

Continuation-in-part of Ser. No. 104,560, Jan. 7, 1971, abandoned. This application July 18, 1972, Ser. No. 272,873

Int. Cl. E21b *17/02*

U.S. Cl. 403—343 **2 Claims**



A drill rod coupling assembly in which each of two rods has at least two spaced sets of threads, the outer of which are coupled by a sleeve so that percussive force is transmitted through the abutting ends of the rods The threads at the end of each rod are designed for surface to surface contact with matching surfaces on a stop in the sleeve. Whenever the outer set of threads is worn or broken they may be cut off and a new end similar to the original end is provided and may be coupled by the sleeve.

3,822,953

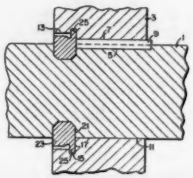
DISC RETAINER DEVICE

Richard S. Adelizzi, Newtown Square, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 7, 1972, Ser. No. 304,453

Int. Cl. B60b *27/06;* **F16d** *1/06*

U.S. Cl. 403—356 **4 Claims**



A turbine disc is keyed to a shaft and retained from axial movement by a circumferentially extending projection which is fixed relative to the shaft and extends into a circumferential groove in the disc, the projection being short so that the disc may be expanded by heating to slide over the projection.

3,822,954

SECTIONAL CONCRETE ROAD CURBS FOR USE AS BORDERS FOR INSTANCE BETWEEN ROADWAYS AND SIDEWALKS

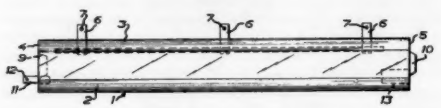
Rolf Ansgariusson, Sommarvagen 1, 54100 Skovde, Sweden

Filed Nov. 27, 1972, Ser. No. 309,659

Claims priority, application Germany, June 28, 1972, 7224056

Int. Cl. E01c *11/22*

U.S. Cl. 404—7 **2 Claims**



An elongated sectional concrete road curb for positioning, together with other curbs of identical configuration, in a row in interconnected end-to-end relationship on an asphalt layer to serve as a border between a roadway and a sidewalk lying at a higher level than the roadway. Fastening means are embedded in the curb at the molding thereof so as to protrude from one side face and one end face of the curb to engage keys driven into the asphalt layer. One end face of the curb has a protruding tongue while the other end face of the curb is formed with a recess of a shape complementary to that of the tongue.

3,822,955

GROUND SURFACES

Heinz Haferkamp, Wolfenbuttel, and Gunter Peterson, Lingen/Ems, both of Germany, assignors to Deutsche Schachtbau-und Tiefbohrgesellschaft m.b.H., Lingen/Ems, Germany

Filed Feb. 1, 1972, Ser. No. 222,492

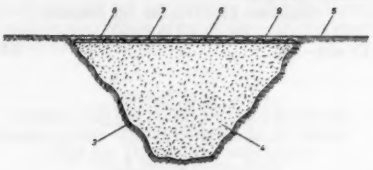
Claims priority, application Germany, Feb. 12, 1971, 2106723

Int. Cl. E01c *7/00*

U.S. Cl. 404—72 **7 Claims**

The invention relates to a method of filling craters or depressions in the ground or for constructing roadways on

ground which is not initially capable of supporting loads. A hard synthetic plastic foam is formed in the crater or on the



ground, the foam being formed so as to have a bulk weight sufficient to give the foam the necessary strength.

3,822,956

MACHINE FOR CUTTING OR STRIPPING PAVEMENT

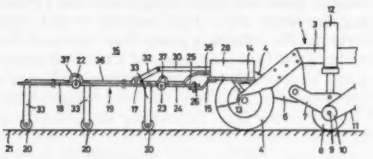
Reinhard Wirtgen, Hohnerstrasse 5461, Windhagen uber Linz, Rhine, Germany

Filed Mar. 5, 1973, Ser. No. 338,049

Claims priority, application Germany, Apr. 15, 1972, 2218350; Dec. 27, 1972, 2263611

Int. Cl. E01c *23/14*

U.S. Cl. 404—95 **40 Claims**



A machine for removing pavement by cutting or stripping away the pavement on a highway in connection with highway-repair operations. The apparatus includes a vehicle which has a suitable tool driven to cut or strip away the pavement from the surface of the highway. Since in many cases it is necessary to initially heat the pavement to prepare it for removal, the vehicle has operatively connected to its front end a frame which carries sources of radiant heat from which heat is directed down to the pvavment to heat the latter in preparation for removal thereof. This frame is made up of sections connected to each other in such a way that the frame can be collapsed to a location carried by the front end of the vehicle so that the latter can travel without being hampered by riding of the frame and heating structure on the highway. The sections can be expanded from their inoperative position carried by the vehicle to an operative position extending forwardly from the vehicle so as to render the heating structure operative. The heating structure provides the radiant heat energy from a combustible gas which if it is derived from a tank carried by the vehicle in which the gas is in liquified form is first converted into dry gaseous form by a suitable vaporizer situated between the tank of liquified gas and the heating structure.

3,822,957

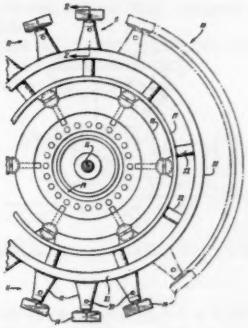
EARTH COMPACTION PADS

Fred Joseph Caron, Citrus Heights, and James Oliver Caron, Sacramento, both of Calif., assignors to Caron Compactor Co., West Sacramento, Calif.

Continuation-in-part of Ser. No. 179,097, Sept. 9, 1971, abandoned. This application Oct. 24, 1972, Ser. No. 300,136

U.S. Cl. 404—121 **20 Claims**

Compaction wheels are convertible from sheepsfoot configuration to other configurations such as rectangular pads and have rigidly attached peripheral shanks for mounting removable, wear-cap holders equipped with replaceable, abra-



sion-resistant metal wear-caps. In certain embodiments the wear-cap holders are secured rigidly to the wheel periphery.

3,822,958

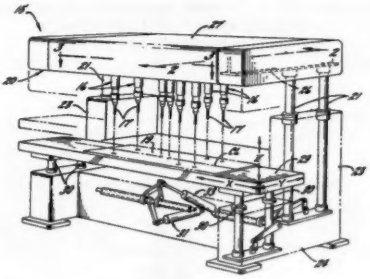
MULTISPINDLE DRILLING MACHINE

John M. Lewis, Rockford, Ill., assignor to Ekstrom, Carlson & Co., Rockford, Ill.

Filed June 4, 1973, Ser. No. 366,543

Int. Cl. B23b *39/18*

U.S. Cl. 408—46 **16 Claims**



Each drilling unit is mounted on a Y-carriage which is supported for adjustment along the Y-axis by an X-carriage. The X-carriages are arranged in two rows and are individually adjustable along the X-axis. The X-carriages are adapted to interleave with one another along the X-axis while the Y-carriages are adapted to interleave with one another along the Y-axis to enable positioning of the drilling units as closely together as possible and in various selected patterns.

3,822,959

DIVIDING OR INDEXING APPARATUS

Jean-Louis Tabard, Geneva, Switzerland, assignor to Societe Genevoise D'Instruments de Physique, Geneva, Switzerland

Filed July 25, 1972, Ser. No. 274,911

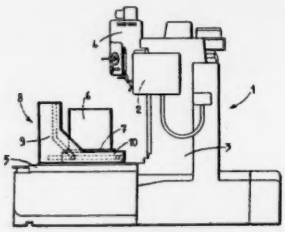
Claims priority, application Switzerland, Aug. 4, 1971, 11508/71

Int. Cl. B23b *41/00*

U.S. Cl. 408—89 **1 Claim**

Dividing or indexing apparatus for a machine tool, the apparatus including an inclinable rotatable plate and a frame comprising two portions, namely, a stationary portion,

secured to the machine, and a portion movable with respect to the stationary portion, the movable portion carrying the rotatable plate, the frame being so arranged that its movable



portion can effect a double movement, on the one hand of translation and on the other hand of rotation around a geometrical axis which is itself movable, permitting rocking movement of the plate.

3,822,960

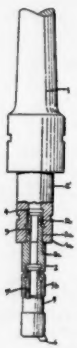
SET OF ELEMENTS COMBINABLE IN DIFFERENT ARRANGEMENTS AS WORKING TOOLS FOR MACHINE TOOLS

Jean Degen, Geneva, Switzerland, assignor to Societe Genevoise D'Instruments de Physique, Geneva, Switzerland

Continuation-in-part of Ser. No. 91,690, Nov. 23, 1970, abandoned. This application Jan. 30, 1973, Ser. No. 328,014

Int. Cl. B23b *51/00*

U.S. Cl. 408—226 **1 Claim**



A tooling system allowing interchangeable use of different cutting tools for machine tools and comprehending a plurality of adapters, a plurality of intermediary members of different lengths and diameters, and a plurality of tool-holding heads, with each adapter being provided at one of its ends with means permitting mounting on the spindle of a machine tool and at its other end with a threaded boring for receiving a selected one of the intermediary members, and with a threaded portion of the intermediary member being threaded in the threaded portion of the adapter, and with intermediary members being provided each with a shoulder having an annular plane perpendicular to the axis of the tool and being in contact, when the intermediary member is threaded on the adapter, with a terminal axial face of the latter and with perfect coaxiality between adapter and intermediary member.

3,822,961

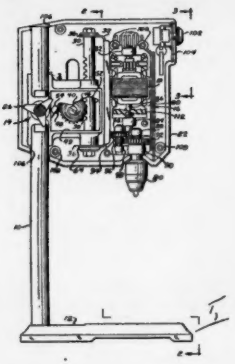
VARIABLE SPEED DRILL PRESS

Michael T. Lay, West Chicago, Ill., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Nov. 21, 1972, Ser. No. 308,416

Int. Cl. B23b *39/00*

U.S. Cl. 408—236 **3 Claims**



A variable speed drill press having a base with a column upstanding therefrom and a head secured to and adjustable heightwise on the column, a power head mounted from the column head and having a motor and a powered output shaft with a tool bit chuck thereon, an operating handle and pinion thereon mounted in the column head and engaged with a rack shaft on the power head for moving the power head in a cutting stroke relative to the column head and base, a post on the power head held by guide abutments or faces on the column head and having guide stops for adjustably limiting the cutting stroke, and a housing secured over the power head and also over the column head.

3,822,962

HOT WATER PUMP WITH REMOVABLE SHAFT BEARING

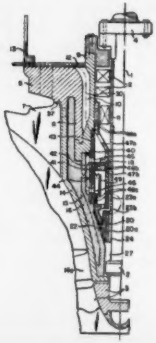
Rudolf Wieser, Voitsberg, Germany, assignor to Maschinenfabrik Andritz Actiengesellschaft

Filed May 23, 1972, Ser. No. 255,977

Claims priority, application Austria, June 29, 1971, 5635/71

Int. Cl. F01d *1/02*

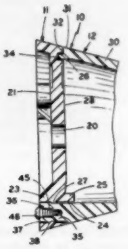
U.S. Cl. 415—201 **9 Claims**



This invention relates to an improvement in a hot water pump having a removable shaft bearing in the upper pump

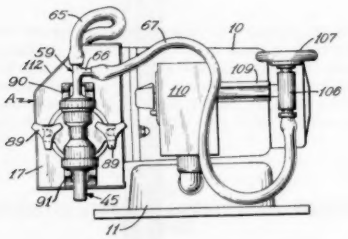
part and including a shaft, a pump cover, a sealing housing, an outer and an inner supporting tube, and a lower shaft bearing. The improvement comprises lower shaft bearing means having an outside diameter smaller than the inside diameter of the sealing housing and the inner supporting tube, whereby the lower shaft bearing may be pulled out through said inner supporting tube and sealing housing.

3,822,963
MODEL AIRPLANE PROPELLER SPINNER
Carl Goldberg, 9849 S. Claremont, Chicago, Ill. 60643
Filed Jan. 24, 1973, Ser. No. 326,414
Int. Cl. B64c *11/14*
U.S. Cl. 416—245 **11 Claims**



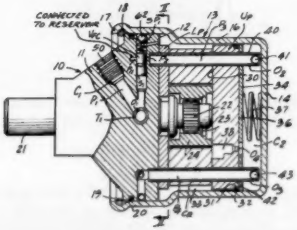
A model airplane spinner to be mounted with a propeller on the propeller shaft and thrust plate of an engine by a propeller retainer and providing a base plate mountable on the propeller to receive the propeller, retained on the propeller shaft, with a hollow dome adapted to be positioned on the front of the base plate to enclose the center of the propeller therein with releasable means for securing the dome in position.

3,822,964
ICE CREAM PUMP
Harold A. Berglund, Afton, and David F. Thomas, West St. Paul, both of Minn., assignors to Waterous Company, St. Paul, Minn.
Division of Ser. No. 61,658, Aug. 6, 1970, Pat. No. 3,697,197.
This application May 1, 1972, Ser. No. 248,855
Int. Cl. F04b *49/02*
U.S. Cl. 417—44 **1 Claim**



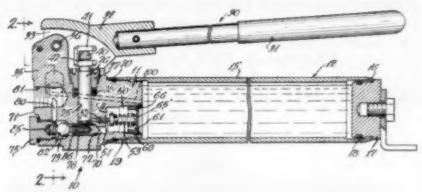
A double acting pump is provided for pumping air in one cylinder and liquid mix into another. The cylinders and valve housings, together with the inlet and outlet fittings, are readily separable for cleaning. The entire pump unit may be disassembled for cleaning by the removal of four knobs or nuts.

3,822,965
PUMPS WITH SERVO-TYPE ACTUATION FOR CHEEK PLATE UNLOADING
Gilbert H. Drutchas, Birmingham, and George A. Berman, Huntington Woods, both of Mich., assignors to TRW Inc., Cleveland, Ohio
Filed Nov. 2, 1972, Ser. No. 303,115
Int. Cl. F04b *49/02*
U.S. Cl. 417—53 **21 Claims**



The pressure acting on a pressure loaded cheek plate in a pump is selectively vented by a servo valve actuated by the buildup of pressure in the pump outlet caused by normal parasitic losses in a downstream hydraulic flow circuit. Since it may be desirable to actuate the servo valve by the pressure drop across an orifice in the outlet line or by a suitable orifice in the pump return to pump, both embodiments are disclosed as exemplary means for achieving the premises of this design.

3,822,966
HYDRAULIC PUMP
Samuel B. McClocklin, Owatonna, Minn., assignor to Owatonna Tool Company, Owatonna, Minn.
Filed Oct. 26, 1972, Ser. No. 294,818
Int. Cl. F04b *49/08;* **B66f** *5/04*
U.S. Cl. 417—311 **3 Claims**

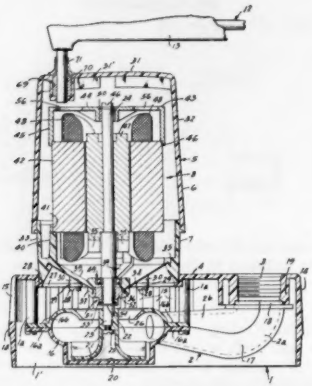


A hydraulic hand pump having an integral reservoir associated with a body having a handle assembly for operating the piston member of the pump. The pump has relief valve structure mounted in the body and communicating with the reservoir with use of a part of the same flow path for supplying fluid to the pump piston and with a passage mounting both an intake valve and an outlet check valve. An outlet sure port and a release valve associated therewith has a return passage leading to reservoir.

3,822,967
SUMP PUMP
George I. Cade; Burt L. Beach; Milo E. Friesen, all of Prophetstown, Ill., and Samuel R. Phillips, San Francisco, Calif., assignors to Houdaille Industries, Inc., Buffalo, N.Y.
Filed July 21, 1972, Ser. No. 273,949
Int. Cl. F04b *39/06*
U.S. Cl. 417—368 **2 Claims**

A sump pump of especially simple, inexpensive construction employing primarily molded plastic components, other

than the electrical drive motor and associated components, comprising a novel assembly of molded plastic components in which adequate motor heat dissipation is provided by a metallic heat sink arrangement, and in which novel structural features are provided including a floating drive shaft bearing arrangement and a novel carrying handle utilizing the electrical power conductors for the drive motor as a part of the handle structure.



3,822,968

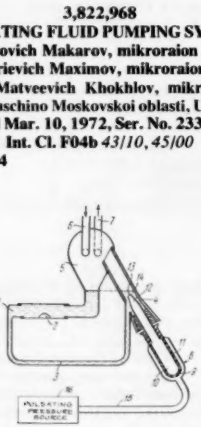
PULSATING FLUID PUMPING SYSTEM

Nikolai Alexandrovich Makarov, mikroraion "V", 31, kv. 42; Mikhail Grigorievich Maximov, mikroraion "G", 1, kv. 31, and Anatoly Matveevich Khokhlov, mikroraion "V", 24, kv. 24, all of Puschino Moskovskoi oblasti, U.S.S.R.

Filed Mar. 10, 1972, Ser. No. 233,457

Int. Cl. F04b *43/10, 45/00*

U.S. Cl. 417—394 **1 Claim**



The pumping system can be utilized wherever pulsatory fluid pumping is expedient or possible.

The system is distinguished by the fact that the positive-displacement pump employed therein is submerged into the fluid being pumped so, that the hole for fluid ejection is located below the level of this fluid, and the inner space of the pump working chamber permanently communicates with the fluid to be pumped.

3,822,969

FUEL INJECTION PUMP FOR A DIESEL ASSISTED RAM

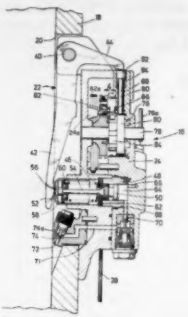
Fritz Kummel, Esslingen, Germany, assignor to Delmay-Maschinenfabrik Reinhold dormfeld, Esslingen, Germany

Filed Nov. 3, 1972, Ser. No. 303,397

Claims priority, application Germany, Nov. 6, 1971, 2155310

Int. Cl. F04b *21/00*

U.S. Cl. 417—437 **8 Claims**



A fuel injection pump for a diesel-assisted ram, pile driver or the like having a cylinder in which a ram piston is adapted to strike a percussion head. The pump comprises a compression chamber, a pump piston movable therein, an inlet from a reservoir of fuel and an outlet to the ram cylinder. A lever pivoted within the plane of the wall of the ram cylinder to extend into the path of the ram piston. The lever is displaced by the ram piston to move the pump piston to force fuel from the chamber to ram cylinder. Means are provided for adjusting the path of movement of the lever to vary the stroke of the pump piston and the volume of discharged fuel.

3,822,970

SINGLE OR MULTIPLE STAGE BOTTOM HOLE WELL PUMP

E. D. Smith, and Robert C. Knight, Denver, Colo., assignors to Soper-Macey Enterprises, Inc., Colorado Springs, Colo.

Filed Feb. 19, 1970, Ser. No. 12,719

Int. Cl. F04b *21/02*

U.S. Cl. 417—552 **2 Claims**

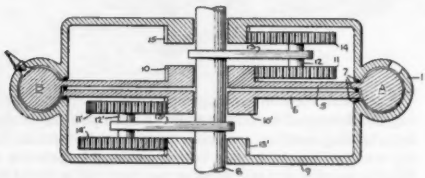
A simplified bottom hole pump having a tubular plunger forming a valve cage and having means for connecting the

plunger to the pump rod string which also serves as end members for the valve cage, and communication is provided between the interior of the plunger and the annular space around the pump rod string by means of inclined apertures in the sides of the end extension connecting means. A reciprocable valve is disposed within the valve cage and is provided with radially spaced apart guide fins.

3,822,971
ROTARY PISTON ENGINE

Kamal Najib Chahrouri, P.O. Box 869, Beirut, Lebanon

Filed Nov. 1, 1972, Ser. No. 302,663
Int. Cl. F01c *1/00*
U.S. Cl. 418—36 **6 Claims**

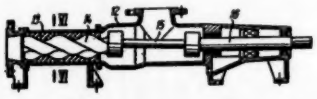


A rotary piston engine having a toroidal cylinder in which pistons accelerate and decelerate has the pistons connected to a rotary shaft by gear trains which need comprise only four gears.

3,822,972
MULTISTART HELICAL ROTOR MECHANISM

Asan-Nuri Abdulla Ogly, Naberezhnaya Tarasa Schevchenko 1/2, kv. 168; Dmitry Fedorovich Baldenko, Staro-Kashirskoe shosse 2, korpus 12, kv. 23; Moisei Timofeevich Gusman, Vorobievskoe shosse, 11, kv. 69, all of Moscow; Anatoly Mikhailovich Kochnev, ulitsa Stakhanova, 40, kv. 53, and Samuil Solomonovich Nikomarov, ulitsa Stakhanova 42, kv. 10, both of Perm, all of U.S.S.R.

Filed Nov. 20, 1972, Ser. No. 308,047
Claims priority, application U.S.S.R., Nov. 29, 1971, 1721434
Int. Cl. F01c *1/10*
U.S. Cl. 418—48 **2 Claims**



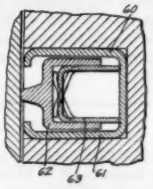
Proposed geometrical parameters of a multi-start helical rotor mechanism, which can be used both as the working member of hydraulic or neumatic machines and as a reducing device, permit the obtaining of a minimum contact pressure and provide enhanced smoothness of the engagement between the helical surfaces of the rotor and stator of the rotor mechanism.

3,822,973
CARTRIDGE OIL SEAL FOR ROTATING COMBUSTION ENGINES

Harold F. Prasse, Town and Country, and Harold E. McCormick, Ballwin, both of Mo., assignors to Ramsey Corporation, St. Louis, Mo.

Filed Oct. 1, 1971, Ser. No. 185,581
Int. Cl. F01c *19/00*; F04c *15/00, 27/00*
U.S. Cl. 418—142 **18 Claims**

An oil seal for the rotor of a rotary piston engine wherein the seal assembly includes a cartridge having a housing member with an open axial end containing a sealing member axially movable in the housing and a spring member to urge

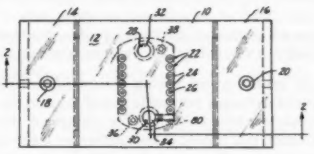


the sealing member out of the open end, the housing being configured to retain the sealing member at the other end.

3,822,974
TOOL SET FOR POWDER COMPACTING PRESS

Raymond P. DeSantis, Roy Oak, and Georges D. DeTroyer, Grosse Ile, both of Mich., assignors to Wolverine-Pentronic, Inc., Lincoln Park, Mich.

Filed Aug. 23, 1972, Ser. No. 282,965
Int. Cl. B30f *11/00*; B22f *3/02*
U.S. Cl. 425—78 **5 Claims**

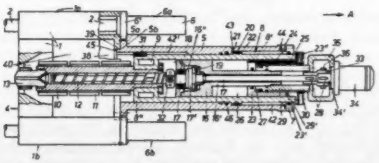


A tool set for use in conjunction with a die plate having at least one die cavity in it and at least one lower punch mounted for movement into the die cavity to compact a powder material and produce a finished article. The tool set includes both punch and core rod, with the punch movable into the die cavity during the press operation. The core rod is fixed with reference to the die cavity and extends into the cavity to provide an aperture in the finished article. The core rod and its special resilient type mounting facilitate sliding movement of the punch relative to the core rod.

3,822,975
INJECTION UNIT FOR AN INJECTION MOLDING MACHINE

Karl Hehl, Seidling 187, D-7291, Lossburg, Wurttemberg, 48195

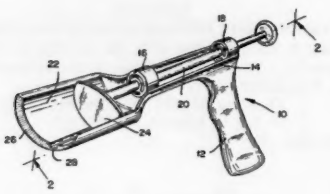
Filed Feb. 29, 1972, Ser. No. 230,350
Claims priority, application Germany, Mar. 12, 1971, 2111978
Int. Cl. B29f *1/03*
U.S. Cl. 425—107 **12 Claims**



An injection unit for an injection molding machine including a cylindrical carrier member within which a hollow piston

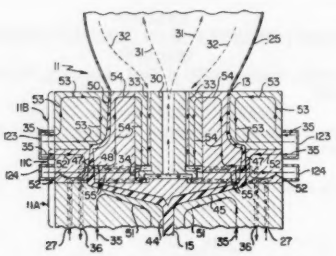
is mounted. The hollow piston has mounted therein a second piston which is connected to a conveying worm of the injection unit plasticizing cylinder. The cylindrical carrier and the hollow piston are operatively associated to form a first hydraulic system for the axial movement of the injection unit. The hollow piston and the second piston are operatively associated to form a second hydraulic system for injecting the synthetic material into the mold.

3,822,976
ICE CREAM SCOOP
Edward R. Moonan, Boonville, N.Y. 13309
Filed Aug. 27, 1973, Ser. No. 391,943
Int. Cl. A23g *5/02*
U.S. Cl. 425—286 **2 Claims**



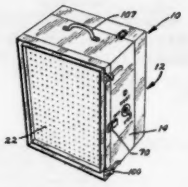
An ice cream scoop having a trowel-like cylindrical end portion and a plunger moveable in said portion for ejecting the food product inserted therein. The plunger is semicircular in configuration and is held from rotation by a special expedient in order to assure the operability and efficiency of the plunger in causing such ejection.

3,822,977
APPARATUS FOR MAKING PLASTIC FILM
Donald R. Hinrichs, Waynesboro, Va., assignor to Reynolds Metals Company, Richmond, Va.
Division of Ser. No. 126,831, March 14, 1971, Pat. No. 3,752,635. This application Apr. 2, 1973, Ser. No. 347,066
Int. Cl. B29f *3/04*
U.S. Cl. 425—326 R **11 Claims**



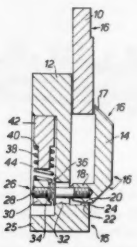
Plastic film is made using a heat transfer liquid circulated through the film extrusion die to control (by either heating or cooling, as required) the temperature of the plastic melt flowing through such die. A plastic bubble emerging at the outlet of the die is inflated and ventilated by continuously circulated gas which is controlled in temperature as it enters and leaves the bubble so that it does not adversely affect the temperature of the melt in the die.

3,822,978
PORTABLE VACUUM FORMING APPARATUS
William R. Nichols, 7313 Garfield Ave. S., Minneapolis, Minn. 55423
Filed Dec. 15, 1972, Ser. No. 315,618
Int. Cl. B29c *17/04*
U.S. Cl. 425—388 **1 Claim**



A portable vacuum forming apparatus consisting of a housing parallelepiped in form including hinged portions comprising a heating member, a vacuum member and a material holding member hinged to said housing swingable between said heating member and said vacuum member, said material holding member comprising an outer frame and an inner frame seating therein, and hinge means connecting said frames, said means resiliently yielding to accommodate various thicknesses of sheet material disposed between said frames and means locking said frames in operating position.

3,822,979
APPARATUS FOR PRODUCING PRESSED CONCRETE ARTICLES
Eugene Francis O'Sullivan; Kay John Seymour-Walker; David John Tudor Webb, all of Building Research Station, Garston, Watford; Christopher Graham Bevan, 6 Amersham House, Craven Rd., London, and Keith Ross, c/o Davy and United Engineering Company Limited, Darnall Works, Sheffield 9, all of England
Continuation of Ser. No. 737,780, June 17, 1968, abandoned. This application Mar. 9, 1971, Ser. No. 122,519
Int. Cl. B29c *3/00*
U.S. Cl. 425—410 **21 Claims**

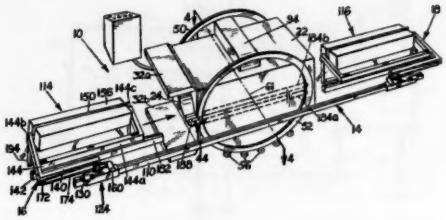


There is described a number of compressible mould dividers and edge forms for use in a concrete pressing process, and a compressible mould framework for use in the process.

3,822,980
ROTATIONAL MOLDING APPARATUS
Michael R. Graeper, Lake Oswego, Oreg., assignor to Plastico, Inc., Portland, Oreg.
Filed Mar. 30, 1972, Ser. No. 239,428
Int. Cl. B29c *5/04*
U.S. Cl. 425—429 **28 Claims**

Rotational molding apparatus including a mold-carrying frame which is mounted on a track for movement between a

mold-working station and an oven. The oven is rotatable under power about a substantially horizontal axis and has a door on one of its sides. With the oven in one position, the door faces toward the mold-working station. The mold-carrying frame may be moved along the track and directly into or out of the oven through the doorway. With the door closed a substantially totally enclosed chamber is provided in the oven. Ducts in the oven are operable to circulate heated air about a



mold rotated in the oven. The oven and mold frame may be rotated about the oven axis in either of reverse directions. The mold frame also is adapted to be rotated within the oven in either of reverse directions about an axis disposed at a substantial angle to the oven axis. The mold-working station includes an enclosure having a movable top which may be moved between a position overlying the mold in the station and a position where it is spaced laterally of the mold.

3,822,981

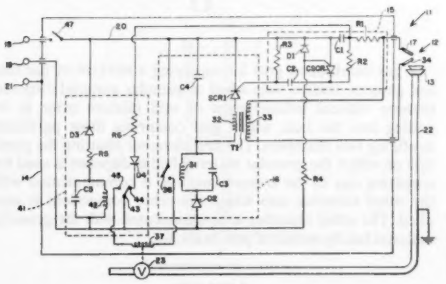
FLAME MONITORING SYSTEM

Lyman H. Walbridge, Ashland, Mass., assignor to Walter Kidde & Company, Inc., Clifton, N.J.

Division of Ser. No. 220,788, Jan. 26, 1972. This application June 23, 1972, Ser. No. 265,598

Int. Cl. F23n *5/12*

U.S. Cl. 431—78 **13 Claims**



Disclosed is a burner control system in which fuel flow is maintained by an operator in response to a flame signal produced by a capacitor charged by flame rectified current. System operation is initiated by precharging the capacitor from an auxiliary direct current source while preventing the operator from supplying fuel. Subsequently, the operator is activated simultaneously with disconnection of the auxiliary direct current source from the capacitor.

3,822,982

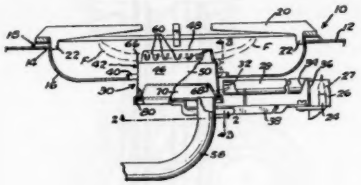
GAS BURNER STRUCTURE

Donald E. Du Perow, Bloomfield Hills, Mich., assignor to Lincoln Brass Works, Detroit, Mich.

Filed June 6, 1973, Ser. No. 367,520

Int. Cl. F24c *3/10*

U.S. Cl. 431—193 **21 Claims**



In a gas burner having a top and a ring of burner ports adjacent thereto, the gas inlet through the burner base is located adjacent a side of the burner body instead of centrally. An inverted dish-shaped baffle having a central opening distributes gas evenly to the burner ports but delays gas en route from the inlet to the burner ports. An opening in the baffle issues gas directly to flash-tube-charge-and ignition porting for quick ignition. Result: diminished "roll out" of flames from the burner ports upon ignition.

3,822,983

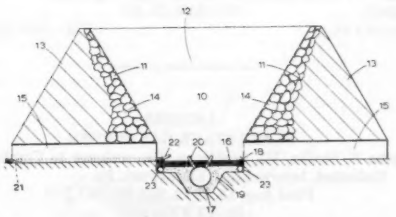
GROUND FLARES

Albert Edward Proctor, New Denham, England, and Giovanni Castorani, Milan, Italy, assignors to A. E. Proctor & Montecatini Edison S.p.A., Milan, Italy

Filed Apr. 23, 1973, Ser. No. 353,686

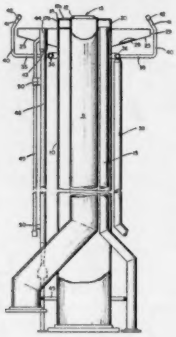
Int. Cl. F23d *13/20*

U.S. Cl. 431—202 **16 Claims**



A ground flare with a combustion zone defined by a floor and walls constructed from earthen banks, stone, rock, bricks or the like. Tubes leading through the walls into the interior of the flare to convey primary combustion air to the combustion zone. A manifold disposed beneath the floor of the flare leads to a series of nozzles projecting upwardly from the flare which serve to discharge a waste gas into the combustion zone. Pilot burners are provided to ignite the waste gas. Some of the nozzles are each surmounted by an air moving device which is fed with steam. The steam flows over a Coanda annulus and serves to induce ambient air into the waste gas discharged by the nozzle.

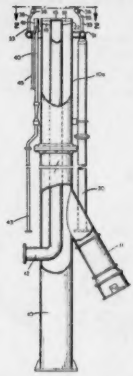
3,822,984
FLARE GAS BURNER
John F. Straitz, III, Jenkintown, Pa., assignor to Combustion Unlimited, Incorporated, Elkins Park, Pa.
Filed Sept. 10, 1973, Ser. No. 395,522
Int. Cl. F23q *9/00*
U.S. Cl. 431—283 **7 Claims**



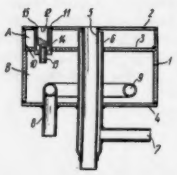
A flare gas burner for waste combustible gases from oil refineries and the like is disclosed which includes an outer stack pipe for high pressure gases having at the top thereof a plurality of outwardly extending tilted vanes with gas delivery slots, the tops of the vanes being angularly disposed in a plane with respect to radial lines through the center of the stack pipe for a swirling action of the burning gas. An optional supply of high pressure assist gas can be provided for low flow rates of high pressure gas. A supply pipe is provided within the stack pipe for delivery of low pressure gas to an annular ring at the top of the stack which ring has elongated slots in the top and side for delivery of low pressure gas for burning. A relief or emergency dump gas supply pipe is also carried within the stack pipe for delivery of gas to the top of the stack pipe for burning. A steam ring is provided carried at the top of the stack with steam delivery pipes along the high pressure vanes and with angularly disposed tips delivering steam to enhance the swirling action of the burning gas and to suppress smoke. Ignitors and pilots are shown for initiating combustion of the gases.

3,822,985
FLARE STACK GAS BURNER
John F. Straitz, III, Jenkinton, Pa., assignor to Combustion Unlimited, Incorporated, Elkins Park, Pa.
Filed Aug. 13, 1973, Ser. No. 387,710
Int. Cl. F23q *9/00*
U.S. Cl. 431—284 **7 Claims**

A flare stack gas burner for waste combustible gases at both low and high pressure and under all flow conditions including low pressure gas without any high pressure gas stream from oil refineries and the like is disclosed with separate delivery systems for the combustion gases which includes a stack with a central low pressure gas delivery tube which has at its top outwardly extending vanes with gas delivery slots, the vanes being disposed for imparting a swirling action to the burning gas. The delivery pipe is closed at the top by a closure plate with flame retention openings. Air at variable low pressure is delivered into the stack at the bottom and flows upwardly between the vanes for smokeless burning. A pipe is provided for high pressure gas mounted exteriorly of the stack for delivery to a manifold ring and thence to delivery pipes with angularly disposed tips for enhancement of the burning of the gases. An optional fluidic seal can be provided in the low pressure gas supply. Ignitors and pilots are provided exteriorly of said stack.



3,822,986
GAS DISTRIBUTION GRID
Avgust Rafaelevich Brun Tsekhovoi, ulitsa Garibaldi 21, korpus 3, kv. 32; Anatoly Naumovich Evreinov, pereulok Malo-Afanasevsky, 1/33, kv. 8, both of Moscow; Vladimir Fedorovich Stadnik, ulitsa Dobrokhotova, 7, kv. 92, and Bosis Kuzmich Ilenko, ulitsa M. Krivonosa, 10, kv. 7, both of Kiev, all of U.S.S.R.
Filed June 7, 1973, Ser. No. 367,877
Int. Cl. F23d *13/12*
U.S. Cl. 431—328 **2 Claims**

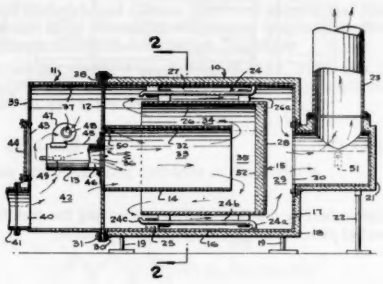


A gas distribution grid for supplying a mixture of gas fuel and gaseous oxidizer into a bed of granular material disposed thereon without inflammation of said mixture prior to its getting into the bed, which grid comprises three partitions confining two chambers. The first chamber abutting the partition on which the granular material bed is disposed is used for supplying one of the components and is communicated with the other chamber into which the other component is supplied. The other chamber is communicated with the granular material bed by means of pipe branches.

3,822,987
THERMAL STERILIZER FOR CONTAMINATED AIR
Auram B. Zanft, New York, N.Y., assignor to Morse Boulger, Inc., New York, N.Y.
Filed Jan. 29, 1973, Ser. No. 327,637
Int. Cl. F23d *15/02*
U.S. Cl. 431—353 **14 Claims**

A thermal sterilizer for contaminated air generally including a housing having means defining a plenum chamber, inlet means for admitting contaminated air into the plenum

chamber, means defining a combustion chamber, an outlet for discharging gaseous products of combustion therefrom and means defining an elongated, tortuous passageway intercommunicating the combustion chamber and the outlet means, and a burner mounted on the housing, the burner having a mixing chamber communicating with the combustion



chamber, a blower having an inlet communicating with the plenum chamber and an outlet communicating with the mixing chamber for injecting contaminated air from the plenum chamber into the mixing chamber of the burner, means for injecting fuel into the mixing chamber, and means for igniting the fuel-contaminated air mixture.

3,822,988

MANUFACTURE OF HOLLOW CLAYWARE ARTICLES

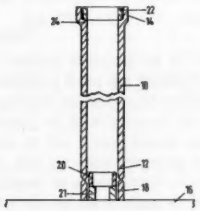
John Frederick Booth, Sheffield, England, assignor to The Hepworth Iron Company Limited, Stocksbridge, England

Filed June 14, 1973, Ser. No. 369,881

Claims priority, application Great Britain, June 15, 1972, 28091/72

Int. Cl. F27b *19/04*

U.S. Cl. 432—5 **10 Claims**



A method of sizing a clayware article comprising internally fitting the article before firing with a mandrel having a coefficient of expansion greater than the coefficient of expansion of the clay when fired, firing the article to a temperature at which the clay becomes plastic and conforms to the mandrel, allowing the fired article to cool whereby the mandrel becomes separated from the article by virtue of the differential shrinkage of the fired clay and the material of the mandrel, and removing the mandrel from the article.

3,822,989

SHAFT FURNACE

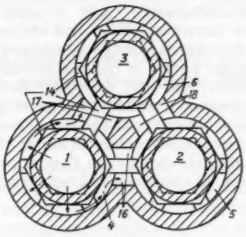
Friedrich Tschinkel, Thalwil, Switzerland, assignor to Maerz Ofenbau AG, Zurich, Switzerland

Filed Apr. 18, 1973, Ser. No. 352,221

Claims priority, application Austria, Apr. 24, 1972, 3583/72

Int. Cl. F27b *1/02*

U.S. Cl. 432—95 **4 Claims**



In a shaft furnace for burning granular material, three vertically extending similarly constructed shafts are arranged with their axes forming the corners of an equiangular triangle, each shaft has an annular channel and each annular channel is interconnected to the annular channels in the other two shafts by separate crossover canals. The crossover canals are connected to each annular channel at angularly spaced positions. Further, the crossover canals extend between the annular channels at the location where the shafts are closest together.

3,822,990

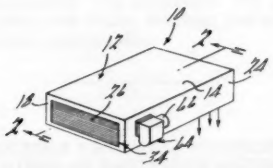
ENERGY CONVERSION MODULE

Artel R. Henson, Pontiac, Mich., and Myron T. Cooperrider, North Royalton, Ohio, assignors to Disco Engineering, Inc., Detroit, Mich.

Filed Nov. 10, 1972, Ser. No. 305,460

Int. Cl. F23l *9/04*

U.S. Cl. 432—222 **31 Claims**



A direct fired oil burner module comprising a housing having means defining air inlet and outlet passages; means for inducing air into the housing through the air inlet passage and for causing the air to travel along a flow path interiorly of the housing and for thereafter discharging the air through the discharge passage, and a direct fired oil burning assembly including a fuel burner unit and an energy conversion section

disposed in heat transfer relationship to air traveling along the flow path and adapted to heat the air preparatory to the air being discharged from the module.

3,822,991

GAS-FIRED FURNACE

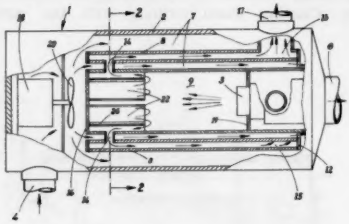
Paul A. Mutchler, University City, Mo., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Oct. 9, 1973, Ser. No. 404,396

Int. Cl. F24h *3/06*

U.S. Cl. 432—223 **4 Claims**

A fuel-fired furnace including a heat exchanger mounted in a housing in heat transfer relation with flowing air passing over the heat transfer surface of the heat exchanger, and, a fuel burner assembly; the heat exchanger having a centrally disposed combustion chamber communicating with a flue gas return means at one end and a fuel burner assembly at the opposite end; the combustion chamber having an outlet disposed in the side thereof whereby the flow of products of combustion leaving the chamber is in a radially outward direction; and, the combustion chamber includes a baffle therein spaced from and covering the outlet, the baffle having an opening



therein whereby the flow of flue gas leaving the combustion chamber passes through the opening in the baffle.

CHEMICAL

3,822,992

EXHAUSTION DYEING PROCESS WITH ANTHRAQUINONE DYESTUFFS IN WATER IMMISCIBLE ORGANIC SOLVENT

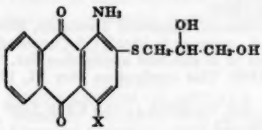
Volker Hederich and Günter Gehrke, Cologne, and Hans-Samuel Bien, Burscheid, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Oct. 12, 1970, Ser. No. 80,208, now abandoned. Divided and this application Feb. 28, 1973, Ser. No. 336,530

Int. Cl. D06p *1/20, 3/54*

U.S. Cl. 8—39 **12 Claims**

New anthraquinone dyestuffs of the formula



in which X denotes a hydroxyl, C_1–C_8-alkyl-carbonylamino, C_1–C_8 - alkyl - sulphonylamino, C_1–C_8-alkoxy-carbonylamino, optionally substituted aryl-carbonylamino, aryl-sulphonylamino, aryloxy-carbonylamino or heteroylamino group and their preparation from corresponding 2-halogen-anthraquinones. They are used for dyeing synthetic fibre materials from organic solvents, especially from those which are immisicible with water, according to the exhaustion process.

3,822,993

PRODUCTION OF CHROME TANNING COMPOSITION FROM WASTE CHROMIUM-COPPER PICKLING LIQUOR

John W. Robinson, Glen Mills, Pa., and John W. Howard, Skaneateles, Robert E. Hahn, Utica, and Donald C. Hemming, Whitesboro, N.Y., assignors to Revere Copper and Brass Incorporated, New York, N.Y.

No Drawing. Filed Apr. 7, 1972, Ser. No. 242,208

Int. Cl. C14c *3/04, 3/06*

U.S. Cl. 8—94.27 **10 Claims**

A chrome tanning composition is obtained from the waste liquor resulting from the pickling of cupreous material with an aqueous sulfuric acid-sodium dichromate solution by reducing at least most of the hexavalent chrominum content of the concentrated waste liquor to the trivalent state, and by then lowering the copper content of the waste liquor to a maximum of about 8 grams per liter by electrolysis or by adding to the liquor a metal which will displace copper from the liquor. The method further includes the steps of neutralizing the aqueous solution to obtain therein a ratio of hydroxyl to trivalent chromium ions in the chromic salt solution within the range of about 1:3 to 2:1 and the step of concentrating the waste liquor to at least a total chromium content of about 0.4 pound per gallon (expressed as Cr_2O_3), both of which steps can be carried out at any stage of the method. The resulting product liquor can be used directly for tanning or can be dehydrated to a tanning salt composition.

3,822,994

PREPARING COTTON MATERIAL WITH IMPROVED TENSILE STRENGTH RETENTION PROPERTIES

Jan J. de Boer, Pijnacker, and Herman Borsten, Voorschoten, Netherlands, assignors to Nederlandse Organisatie Voor Toegepast-Natuurweten-Schappelijk Onderzoek Ten Behoeve Van Nijverheid, The Hague, Netherlands

No Drawing. Filed Jan. 28, 1972, Ser. No. 221,762

Claims priority, application Great Britain, Feb. 19, 1971, 4,982/71

Int. Cl. D06m *1/10*

U.S. Cl. 8—125 **4 Claims**

Cotton fibres or rovings or slivers are subjected to the action of a swelling agent without tension being exerted on them. The swelling agent should be capable of transforming the material into cellulose II. The fibres shrink while still in the presence of the swelling agent and subsequently the fibres are restretched to 95–110% of their original length before swelling. Then while maintaining these dimensions the fibres or rovings or slivers are rinsed or neutralised and rinsed and while still maintaining these dimensions are dried at temperatures exceeding 70° C. The fibres or slivers or rovings can be given a resin finish and they will not show the usual degradation of properties.

3,822,995

PROCESS FOR MODIFYING KERATIN FIBERS TO REDUCE RELAXATION AND FELTING SHRINKAGE AND PRODUCT PRODUCED THEREBY

Emile E. Habib, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

No Drawing. Continuation of application Ser. No. 292,769, July 3, 1963, which is a continuation-in-part of application Ser. No. 230,731, Oct. 15, 1962, now abandoned. This application Sept. 25, 1972, Ser. No. 292,048

Int. Cl. A61k *7/10;* D06m *3/02, 13/00*

U.S. Cl. 8—127.5 **23 Claims**

Shrinkage is reduced in textile fabric containing keratin fibers by impregnating the fabric with an organic solvent which is nonreactive with isocyanates. The process reduces relaxation and felting shrinkage and may set the fibers in a given configuration.

3,822,996

WATER-SOLUBLE THIOUREAS TO INHIBIT OZONE FADING OF DYED POLYAMIDES

Robert Alden Lofquist and Peter Reginald Saunders, Richmond, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed May 22, 1972, Ser. No. 255,628

Int. Cl. D06p *5/02*

U.S. Cl. 8—165 **6 Claims**

When from about 0.2 percent to about 5 percent of water-soluble thioureas are coated on nylon fiber, improved dyefastness is achieved compared to an untreated dyed nylon fiber when this fiber is exposed to ozone.

3,822,997

CYANO-, HYDROXY-, METHOXY-, OR ACETOXY-METHYL BIPHENYL OR DIPHENYL OXIDE ASSISTED DISPERSE DYEING

Hans Wegmueller, Riehen, Switzerland, Alain Lauton, St. Louis, France, and Karl Heinz Keller, Riehen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed July 11, 1972, Ser. No. 270,752
Claims priority, application Switzerland, July 23, 1971, 10,886/71
Int. Cl. D06p 5/06
U.S. Cl. 8—172 9 Claims

A process for dyeing and printing synthetic fibre material, preferably polyester fibre material, with disperse dyes is provided. The process is carried out utilising a substituted biphenyl or biphenyl ether dyeing accelerator. The biphenyl compounds are mono-, di- or trisubstituted with radicals of the formula —CH_2—R, wherein R represents CN, cycloalkyl, aralkoxy, —O—A or

—O—CO—A,

wherein A is hydrogen or alkyl.

3,822,998

METHOD OF PROTECTING TIN-PACKINGS AGAINST CORROSION AND MAKING THEM GLOSSY

Romuald Juchniewicz, Gdansk, Poland, assignor to Politechnika Gdanska Majakowskiego, Gdansk, Poland

No Drawing. Continuation of abandoned application Ser. No. 872,748, Oct. 30, 1969. This application June 30, 1972, Ser. No. 267,983
Claims priority, application Poland, Oct. 10, 1968, 129,973/68
Int. Cl. C23f 11/02, 11/16, 11/18
U.S. Cl. 21—2.7 A 8 Claims

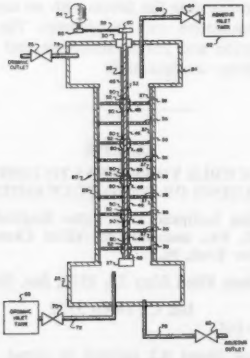
Tin-packings, i.e. tin-cans for food are protected against corrosion and made glossy at the same time by a method in which a tin-packing is treated with a mixture of inorganic and organic corrosion inhibitors having a common anion and having a synergistic effect together with washing and brightening agents.

3,822,999

LIQUID-LIQUID EXTRACTION AND PLUG-FLOW REACTOR APPARATUS

Bill J. Pope, Provo, Utah, assignor to Brigham Young University, Provo, Utah

Filed Mar. 30, 1972, Ser. No. 239,578
Int. Cl. B01d 11/04
U.S. Cl. 23—270.5 1 Claim



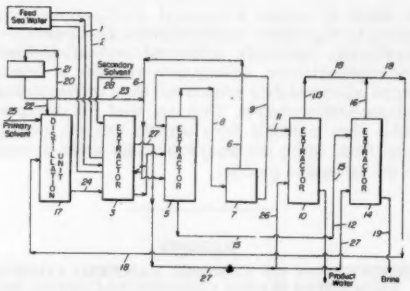
Liquid-liquid extraction and plug-flow reactor apparatus comprising a vertical column having a plurality of alternately stationary and rotatable perforated plates or disks in spaced relation. A comparatively heavy liquid phase is passed from the top to the bottom of the vertical column and a comparatively light liquid phase is passed from the bottom to the top of the column in countercurrent flow. Droplets are formed as the liquid phases pass through the perforations. The rotating perforated plates advantageously shear the droplets to form many new interfacial surfaces. The stationary and rotatable perforated plates both extend across essentially the entire diameter of the vertical column so that liquid is forced to pass through apertures in the plates. Accordingly, backmixing has been found to be substantially reduced and separation efficiency increased. The combination of good radial mixing and limited axial or backmixing makes the apparatus especially well-suited for use as a plug-flow reactor.

3,823,000

RECOVERY OF POTABLE WATER FROM SEA AND BRACKISH WATER BY SELECTIVE SOLVENT EXTRACTION

George C. Johnson, Hopewell Township, Mercer County, N.J., assignor to Mobil Oil Corporation

Continuation of abandoned application Ser. No. 882,068, Dec. 4, 1969. This application May 31, 1972, Ser. No. 258,172
Int. Cl. B01d 11/04; C01b 5/00
U.S. Cl. 210—22 5 Claims



Potable water is recovered from sea water with removal of salt by contacting sea water with a particularly characterized primary solvent which results in two separate fractions. One fraction contains water, a major proportion of primary solvent and a minor proportion of said salt. The other fraction contains water, a major proportion of said salt and a minor proportion of the primary solvent. The primary solvent is recovered from each fraction by the use of a secondary solvent. Potable water and brine are the major products from this process.

3,823,001

DETERMINATION OF THYROID HORMONE UPTAKE

Burton A. Zabin, Berkeley, Calif., assignor to Bio-Rad Laboratories, Richmond, Calif.

No Drawing. Filed May 6, 1971, Ser. No. 126,316
Int. Cl. G01n 33/16
U.S. Cl. 23—230 B 14 Claims

Determination of thyroid hormone uptake from blood serum by a secondary binding substance or absorbent is executed by flowing a serum sample through a column containing the absorbent in a very brief period. A residence time of three minutes or less is typical when using a cross-linked strong base anion exchange resin as the absorbent.

3,823,002

PRECISION MOLDED REFRACTORY ARTICLES

Russell B. Kirby, Jr., Baytown, and Stephen C. Wing, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 5, 1972, Ser. No. 250,620
Int. Cl. B22f 3/00
U.S. Cl. 29—182.1 19 Claims

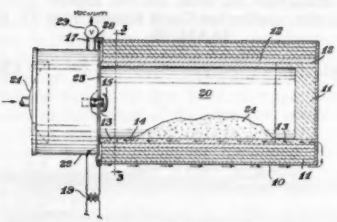
A precision molded refractory article, which can have an intricate geometry with fine surface detail, such as an electrical discharge machining electrode, is made by molding in a flexible mold a plactic mixture of multimodal refractory powders and a thermoplastic binder to form a green article of predetermined shape and dimensions, heating the green article to remove said binder and consolidate the refractory powders with very minimum shrinkage of the article, infiltrating the resulting porous article or skeleton with a molten infiltrant of a low melting point metal or alloy, and cooling the infiltrated skeleton, thereby forming a precision refractory article having a uniform high density, a useful working surface free of machined or otherwise disturbed metal, and a shape and dimensions precisely conforming to said green article.

3,823,003

PREPARATION OF METALS

Thomas W. Mulcihy, Freeport, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of abandoned application Ser. No. 28,373, Apr. 14, 1970. This application Feb. 16, 1972, Ser. No. 226,807
Int. Cl. C22b 45/00; C22d 7/02; H05b 3/66
U.S. Cl. 75—10 V 11 Claims



An improved reactor and process for the non-electrolytic production of metals from their ores in large batches. The process operates at elevated temperatures in an improved internal resistance-heated electric vacuum furnace.

3,823,004

HERBICIDES

Gerhard Schrader, Wuppertal-Cronenberg, and Ludwig Eue and Helmuth Hack, Cologne, Germany, and Seiichi Hirane, Kokubunji, Masahiro Aya, Kodaira, Shigeo Kishino, Machida, and Nobuo Fukazawa, Hachioji, Tokyo, Japan, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Nov. 7, 1969, Ser. No. 874,954, now Patent No. 3,636,143. Divided and this application Nov. 5, 1971, Ser. No. 196,185
Claims priority, application Japan, May 14, 1968, 43/32,501
Int. Cl. A01n 9/20
U.S. Cl. 71—87 7 Claims

Herbicidal compositions containing O-(2-nitro-4-alkylphenyl) - O - alkyl - N - isopropyl-amido-phosphorothioates, and herbicidal uses thereof.

3,823,005

N-(5-CHLORO-*TERT*.BUTYL - 2 - THIADIAZOLYL) CARBOXAMIDES AND USE TO COMBAT UNWANTED VEGETATION

William C. Doyle, Jr., Leawood, and Joel L. Kirkpatrick, Overland Park, Kans., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Oct. 4, 1971, Ser. No. 186,419
Int. Cl. A01n 9/12
U.S. Cl. 71—90 2 Claims

New N-(chloro-*tert*.butylthiadiazolyl) amides are employed to combat undesired vegetation both pre-emergently and post-emergently. Cyclopropanecarboxamides are preferred.

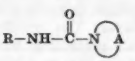
3,823,006

METHOD FOR SELECTIVE WEED CONTROL IN BEETS

Walter Lorenz, Wuppertal-Cronenberg, and Ludwig Eue and Helmuth Hack, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 15, 1971, Ser. No. 189,742
Claims priority, application Germany, Oct. 30, 1970, P 20 53 333.9
Int. Cl. A01n 9/22
U.S. Cl. 71—94 1 Claim

Herbicidal compositions containing, as an active ingredient a N-substituted N',N'-alkylene urea of the formula



in which

A is alkylene of from 2 to 6 carbon atoms, and
R is unbranched or branched alkyl of from 1 to 6 carbon atoms, alkenyl of from 2 to 6 carbon atoms, cycloalkyl of from 4 to 12 carbon atoms, or unsubstituted and substituted aryl wherein the substituents are one or more of halogen, alkyl, alkoxy, and alkyl mercapto;

are singularly effective, and particularly are suitable for selective weed control in beet cultivations.

3,823,007

HERBICIDAL METHOD USING SALTS OF BENZENESULFONYL UREAS

John A. Stephens, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of abandoned application Ser. No. 210,220, July 16, 1962. This application Jan. 14, 1969, Ser. No. 791,183
Int. Cl. A01n 9/14
U.S. Cl. 71—103 1 Claim

The use of salts of substituted benzenesulfonyl ureas as herbicides.

3,823,008

HERBICIDAL COMPOSITIONS AND THEIR USE

Keith Carpenter, Beauchamp Roding, near Ongar, Basil Jason Heywood, Hornchurch, and Edgar William Parnell, Romford, England, and Jean Metivier, Paris, and Roger Boesch, Vitry-sur-Seine, France, assignors to May & Baker Limited, Essex, England

No Drawing. Continuation-in-part of application Ser. No. 548,020, May 5, 1966, which is a continuation-in-part of applications Ser. No. 223,286 and Ser. No. 223,288, both Sept. 4, 1962, all now abandoned. This application Nov. 13, 1970, Ser. No. 89,434
Int. Cl. A01n 9/14
U.S. Cl. 71—103 34 Claims

The invention provides a method for controlling weeds in certain valuable crops e.g. of flax, linseed, lucerne, peas or beans, potatoes, or sugar cane, and in non-crop

areas, by applying to said weeds a sulphonylcarbamic ester of the formula:

wherein X is nitro, primary amino, methylamino, *N*-methylformylamino, or methoxycarbonylamino, or a salt thereof.

3,823,009

AGGLOMERATION OF TITANIUM ORES CONTAINING IRON

Gunter Lailach and Gerhard Winter, Krefeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 25, 1972, Ser. No. 220,677
Claims priority, application Germany, Feb. 9, 1971, P 21 05 932.5
Int. Cl. C21b *1/00, 1/08;* C22b *1/00*
U.S. Cl. 75—3 **11 Claims**

In the production of agglomerated iron-containing titanium ores suitable for reduction of the iron contained therein, wherein finely divided ore particles are wetted, shaped into larger molded agglomerates, dried and hardened, the improvement which comprises admixing with said ore particles prior to hardening about 0.04 to 30% by weight of the ore of a compound of iron, titanium or mixtures thereof. The admixed compounds are preferably oxides or materials which yield oxides under the ambient conditions. Desirably about 0.005 to 10% by weight of a water-soluble organic polymer is also added to form a better bond. The molded agglomerates of about 1 to 30 mm. are preferably hardened in an oxidizing atmosphere at about 700 to 1300° C. and thereafter optionally without cooling reduced with carbon, methane or hydrogen at about 700 to 1300° C. to convert the iron therein to metallic state.

ERRATUM

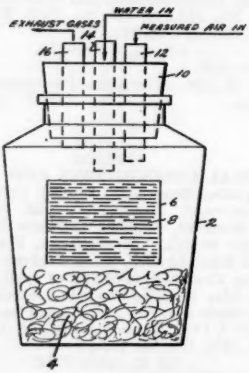
For Class 75—10 see:
Patent No. 3,823,003

3,823,010

ELIMINATION OF H_2S FROM SLAG QUENCHING

George S. Tobias, Sewickley, Pa., assignor to Envirotrol, Inc., Sewickley, Pa.

Filed Aug. 20, 1971, Ser. No. 173,588
Int. Cl. C21b *3/08*
U.S. Cl. 75—24 **10 Claims**



H_2S is eliminated from slag quenching by contacting the hot slag and/or quench gases with carbon containing materials such as activated carbon or coke in the presence of air. There can also be added various inorganic chemicals which react with hydrogen sulfide.

3,823,011

PROMOTED IRON ORE REDUCTION PROCESS

Roger F. Sebenik and Martin O. Gernand, Baton Rouge, La., assignors to Esso Research and Engineering Company

No Drawing. Continuation of abandoned application Ser. No. 860,411, Sept. 23, 1969, which is a continuation-in-part of application Ser. No. 789,589, Jan. 7, 1969, now Patent No. 3,637,369. This application Sept. 3, 1971, Ser. No. 177,776
Int. Cl. C21b *1/02*
U.S. Cl. 75—26 **8 Claims**

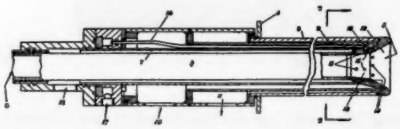
A process is provided for the direct solid phase reduction of iron ore whereby at least a first and a second compound are added to the reduction process, the first compound being a promoter for the reduction process and being chosen from certain compounds from Groups IA, IIA, and IIIA, e.g., halides, and the second compound being either a promoter which in an ionic state will react with the first compound to produce a nonpromoter or the second compound is a nonpromoter.

3,823,012

METHOD AND APPARATUS FOR FEEDING PARTICULATE MATERIALS TO FURNACES AND THE LIKE

Edward Townshend Carruthers Johnstone, East St. Ives, and Robert Sidney Brunton, Kirrawee, New South Wales, Australia, assignors to The Commonwealth Industrial Gases Limited, New South Wales, Australia

Filed Nov. 16, 1970, Ser. No. 89,997
Claims priority, application Great Britain, June 25, 1969, 16,614/69
Int. Cl. C21c *7/00*
U.S. Cl. 75—51 **7 Claims**



A method and apparatus for feeding particulate material to a furnace using a conduit or "lance" having a nozzle for delivery of the material into the furnace. The conduit has a fuel supply duct and an oxygen supply duct designed so that the fuel, oxygen and particulates are uniformly mixed and heated before they reach the melt to increase the efficiency of combustion.

3,823,013

FLUX COMPOSITION FOR ZINC BASE ALLOYS

Garth D. Lawrence, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Original application Sept. 22, 1967, Ser. No. 669,680, now abandoned. Divided and this application May 14, 1970, Ser. No. 48,723
Int. Cl. C22b *9/10*
U.S. Cl. 75—65 R **10 Claims**

The present invention comprises an improved non-fuming, low melting flux composition for use in melting zinc and zinc base alloys consisting essentially of from about 48 to about 60 weight percent potassium chloride, the balance being essentially lithium chloride.

3,823,014

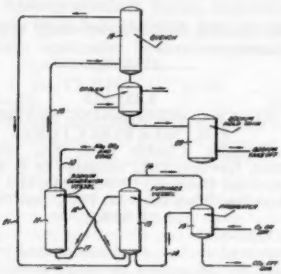
SODIUM RECOVERY PROCESS

Victor Manuel Chong, Media, Pa., assignor to Sun Research and Development Co., St. Davids, Pa.

Continuation-in-part of abandoned application Ser. No. 177,270, Sept. 2, 1971. This application Feb. 9, 1973, Ser. No. 330,929

Int. Cl. C22b *27/00*

U.S. Cl. 75—66 3 Claims



A thermal process for the generation of sodium metal from sodium carbonate and coke by feeding particulate coke and sodium carbonate to a sodium generator, conducting molten sodium carbonate containing unreacted coke by gravity flow from the upper portion of the generator to the bottom of a furnace, said furnace being fed with a source of oxygen to obtain essentially complete combustion of the coke, recirculating the molten sodium carbonate by gravity flow from an upper portion of the furnace to the bottom of the generator, conducting vapors of carbon monoxide and sodium from the generator to a quench system, recovering condensed liquid sodium from the bottom of the quench system, the carbon monoxide exiting from the quench system being returned to the furnace for combustion to carbon dioxide.

3,823,015

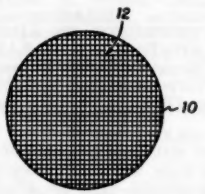
PHOTO-MASKING PROCESS

John R. Fassett, Irvine, Calif., assignor to Collins Radio Company, Dallas, Tex.

Filed Jan. 2, 1973, Ser. No. 320,363

Int. Cl. G03c *5/00*

U.S. Cl. 96—36 10 Claims



A method of pattern definition employing photoresist masking techniques useful in photoengraving generally and in semiconductor processing specifically wherein defects due to inherent mask flaws are minimized and mask tolerance is improved including the steps of thrice defining and etching a pattern definition layer using separate photo masks or, where possible, by indexing the same photo mask whereby flaws in the masks do not coincide.

3,823,016

PHOTOMASK REPAIR PROCESS

James Joseph Di Fazio and George Joseph Giuffre, Wappingers Falls, and James Rodney Zingerman, Pine Bush, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 3, 1973, Ser. No. 356,862

Int. Cl. G03c *5/00*

U.S. Cl. 96—38.3 5 Claims

Defects in exposure masks used in integrated circuit manufacture are corrected during the development process. A silver halide emulsion is exposed to form a latent image of a circuit pattern. The emulsion is partially developed and is then observed under a microscope using red safe-light illumination. The areas which should have been exposed but were not; due, for example, to the presence of dirt particles, are visually located as showing red against a black or gray background. These areas are then selectively exposed, and the development of the emulsion is completed.

3,823,017

COLOR PHOTOGRAPHIC DEVELOPER COMPOSITIONS

Harvey A. Hodes, Eatontown, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed Apr. 5, 1973, Ser. No. 348,346

Int. Cl. G03c *5/30*

U.S. Cl. 96—66.4 3 Claims

A color photographic developer composition of improved stability to aerial oxidation is obtained by including 2-anilinoethanol in the developer composition.

3,823,018

FOGGED, DIRECT-POSITIVE SILVER HALIDE EMULSION CONTAINING A THALLIUM SALT AND A DYE CONTAINING A CYCLOHEPTATRIENE RING

Hirotetu Kato, Tatsuya Tajima, and Akira Sato, Minami-ashigara, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Kanagawa, Japan

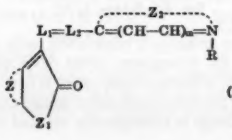
No Drawing. Filed July 24, 1972, Ser. No. 274,371

Claims priority, application Japan, July 28, 1971, 46/56,562

Int. Cl. G03c *1/28, 1/36*

U.S. Cl. 96—101 13 Claims

A direct reversal photographic sensitive material which comprises a photographic emulsion containing silver halide particles therein, at least one dye represented by the formula (1)



wherein Z, Z_1, Z_2, R, L_1, L_2, X, *m* and *n* are as defined hereinafter and a thallium salt, said thallium salt being added to said emulsion during formation of said silver halide particles, during physical ripening of said emulsion, or during formation of said silver halide particles and during physical ripening of said emulsion, is disclosed.

3,823,019
MINE WALL COATING
John M. Dale and Allen C. Ludwig, San Antonio, Tex., assignors to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed Sept. 6, 1972, Ser. No. 286,627
Int. Cl. C09d *5/18*
U.S. Cl. 106—15 FP **3 Claims**

A mine wall coating composition is compounded from elemental sulfur, dicyclopentadiene, glass fiber and talc. This composition is applied to mine walls by spraying a molten mixture of the composition at elevated temperature. Preferably, the composition is allowed to age at elevated temperature prior to spraying to permit reaction between the sulfur and the dicyclopentadiene.

3,823,020
WATER EMULSION PASTE STENCIL INK
John L. Gilson, Morton Grove, and Gail L. Strachan, Skokie, Ill., assignors to A. B. Dick Company, Niles, Ill.
No Drawing. Continuation of abandoned application Ser. No. 43,222, June 3, 1970. This application Nov. 9, 1971, Ser. No. 197,186
Int. Cl. C09d *11/08*
U.S. Cl. 106—30 **10 Claims**

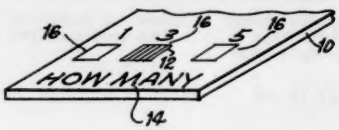
A water emulsion paste ink for stencil duplication formulated of petroleum sulfonate, tinctorial agent, surface active agent and a rosinous binder with mineral oil subdivided into one component having an API number below 26 and another component having an API number above 32.

3,823,021
CEMENT COMPOSITIONS CONTAINING SODA LIME GLASS
Alex G. Jansen, 3812 N. Odell, Chicago, Ill. 60634
No Drawing. Filed June 19, 1972, Ser. No. 264,052
Int. Cl. C04b *7/02;* **C08h** *17/04*
U.S. Cl. 106—97 **3 Claims**

A cementitious composition for use for example, as overlay layers for concrete bases of improved adhesion property which comprises from about 20 to 66 parts by weight of cement, from about 80 to 34 parts by weight of silica sand and from about 0.1% to 1.5% by weight, based upon the weight of said cement, or glass particles having a particle size in the range of 2.6 to 233 mesh and being a soda lime type glass.

3,823,022
METHOD FOR MAKING COPY SHEETS WITH A CONCEALED IMAGE AND VISUAL DEVELOPMENT OF SAME
Richard E. Thomas, Chicago, Ill., assignor to A. B. Dick Company, Chicago, Ill.
Continuation of abandoned application Ser. No. 19,955, Mar. 16, 1970. This application Apr. 17, 1972, Ser. No. 245,001
Int. Cl. B41m *5/12*
U.S. Cl. 117—1.7 **14 Claims**

A method for imaging a copy sheet with a concealed image and for the subsequent visual development of the concealed image, wherein a copy sheet is first imaged with a Lewis acid to provide a concealed image and the resulting concealed image is subsequently marked with a marking composition containing a mixture of a wax and a leuco dye intermediate which is capable of reaction with the



Lewis acid forming the concealed image to produce color of high intensity.

3,823,023
SURFACE CONDITIONING SYSTEM FOR POLYMER STRUCTURES
Ray B. Duggins, Chadds Ford, Pa., and Eustathios Vassiliou, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed May 30, 1972, Ser. No. 257,665
Int. Cl. B29c *1/04*
U.S. Cl. 117—5.1 **10 Claims**

An improved surface conditioning and release system is provided for all casting processes in which a polymerizable material is deposited on a casting surface by a surface conditioning layer applied to the casting surface. The surface conditioning layer comprises a water soluble film forming material such as gelatin or carboxymethyl cellulose which is essentially insoluble in the polymerizable material and which will remain water soluble under the conditions used to polymerize the polymerizable material. The layer also contains a water-soluble film-extending agent which is polyvinyl alcohol or a mixture of polyvinyl alcohol and a polyether glycol.

3,823,024
PROCESS FOR FORMING A STRIPPABLE COATING
Joseph A. Cogliano, Baltimore, Md., assignor to W. R. Grace & Co., New York, N.Y.
No Drawing. Filed May 10, 1972, Ser. No. 251,880
Int. Cl. B44d *1/34*
U.S. Cl. 117—6 **2 Claims**

This invention relates to a strippable coating process and a coating composition therefor comprising (1) a latex, (2) a coagulant for said latex and (3) a debonding agent consisting essentially of a substantially nonvolatile additive which is adhesive to at least one of either the coated substrate or coagulated coating, more soluble in water than in the coagulated latex polymer component and having a solubility parameter at least 2 (calories/cc.) ½ higher than the coagulated latex polymer component.

3,823,025
ARTICLE COMPRISING AN ADHESIVE COATING AND CONTROLLED RELEASE COATING
Thomas S. Mestetsky, Easton, Pa., assignor to GAF Corporation, New York, N.Y.
No Drawing. Filed July 27, 1971, Ser. No. 166,569
Int. Cl. C09j *7/04*
U.S. Cl. 117—68.5 **9 Claims**

A base sheet material one surface of which carries an outer adhesive layer, the other surface of said sheet material carrying an outer layer of an aqueous controlled release coating composition comprising a cured mixture of an aqueous organopolysiloxane emulsion and a water soluble homopolymer or copolymer of an aliphatic unsaturated dibasic acid or derivative thereof. As the amount

of said water soluble polymer increases, the required release force decreases below that of pure organopolysiloxane to a minimum, and then gradually increases to a level above that of the organopolysiloxane. Typical compositions comprise an aqueous emulsion of a polymethylsiloxane and a polyvinyl methyl ether/maleic anhydride copolymer in a 10:1 to 1:10 ratio on a weight basis.

3,823,026

METHOD FOR THE FABRICATION OF COMPOSITE INSULATIONS

Gerhart Brunar, Vienna, Austria, assignor to Meynadier & Cie Aktiengesellschaft, Zurich, Switzerland

No Drawing. Filed Jan. 21, 1972, Ser. No. 219,894

Claims priority, application Switzerland, Feb. 1, 1971, 1,428/71

Int. Cl. B44d *1/12, 1/16*

U.S. Cl. 117—72 **23 Claims**

A method for the fabrication of a composite insulation for structures composed of at least two layers of different composition and different mechanical properties, comprising the steps of initially providing the surface to be insulated with a plastic insulation layer formed of bitumen, tar, bitumen-latex or tar-latex in that there is simultaneously and separately applied the material which is present in the form of a dispersion i.e. an emulsion or suspension and a precipitating agent, and thereafter applying to the plastic insulation layer an elastic rubber layer by simultaneously or separately applying a latex i.e. emulsion or suspension and a precipitating agent.

3,823,027

METHOD OF FORMING OPAQUE FILMS

Marco Wismer, Gibsonia, Charles Pohan, Philadelphia, Kenneth E. Miller, Natrona Heights, and Charles M. Hansen, Glenshaw, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Dec. 4, 1972, Ser. No. 311,588

Int. Cl. B44d *1/50;* **C08f** *3/42, 11/02*

U.S. Cl. 117—93.31 **12 Claims**

A method of forming cured opaque films, with or without the use of pigments, comprises subjecting a composition comprising an actinic light sensitive material and a solvent having a specified solubility with the material and which is present in an amount of from about 10 percent to about 70 percent by weight of the composition and which has a boiling point of at least about 115° F. or higher, to actinic light to cure said materials. The resulting film contains microvoids which causes the film to be opaque.

3,823,028

IMPREGNATION OF CORRUGATED BOARD

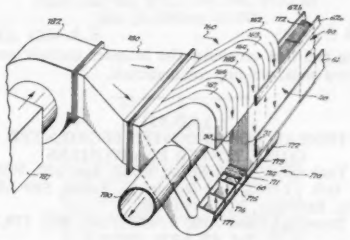
Charles Mourad Arian, Montreal, Quebec, and Hans Hermann Mahler, Ville d'Anjou, Quebec, Canada, Claude Cecil Hayes, Jr., Suffield, Conn., and Hal W. Tanner, Jr., Georgetown, S.C., assignors to International Paper Company, New York, N.Y.

Original application July 13, 1970, Ser. No. 54,201, now Patent No. 3,695,219. Divided and this application May 18, 1972, Ser. No. 254,804

Int. Cl. B05c *7/00;* **B05b** *13/06*

U.S. Cl. 117—95 **13 Claims**

A bundle of corrugated boards, having the fluted channels of the boards in substantially unidirectional alignment throughout the bundle is continuously advanced through an apparatus which comprises means for supporting the bundle, means for applying a compressive force against the outer surfaces of the bundle to maintain surfaces of adjoining boards in the bundle in tight abutment as the bundle advances, with at least a portion of the compression means forming the walls of a trough in the zone of impregnation with the bottom of the trough being defined by the upper surface of the bundle; the trough walls tightly abut against at least the upper portions of the outer surfaces of the bundle. Means are provided for delivering a liquid impregnating composition into the trough as the bundle advances through the trough. The trough communicates with the aligned fluted channels of the bundle. Since the individual members of the bundle are tightly compressed together, the impregnating liquid flows downwardly through the fluted channels of the boards without contacting the outer surfaces of



the individual members of the bundle. When impregnation is completed, sequential means are provided for: first, circulating a gas through the fluted channels of the board bundle as it continuously advances to flush out excess impregnant; second, means for circulating a hot gas through the fluted channels of the bundle to drive off volatiles contained in the impregnating composition; third, circulating a second stream of the hot gas though the fluted channels of the dried bundle as it continuously advances to effectuate curing of the impregnant contained in the boards; and fourthly, delivering water into the fluted channels of the bundle as it continuously advances in order to humidify the boards.

3,823,029

METHOD FOR COATING GRAPHITE FILAMENTS WITH REFRACTORY METAL CARBIDES

Moinuddin S. Rashid, Ames, Iowa, assignor to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Aug. 1, 1972, Ser. No. 276,989

Int. Cl. B44d *5/12*

U.S. Cl. 117—118 **6 Claims**

Fine graphite filaments for use as reinforcements in metals and alloys are coated with a thin layer of a refractory metal carbide by heating the filaments in a low-melting metal containing a small amount of a refractory metal.

3,823,030

METHOD OF MAKING A BEARING SYSTEM HAVING ENTRAINED WEAR-RESISTANT PARTICLES

Lester S. Hudson, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

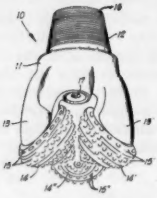
Filed Oct. 18, 1972, Ser. No. 298,684

Int. Cl. C23c *17/00*

U.S. Cl. 117—131 **4 Claims**

A rock bit bearing system is provided by filling a groove in the bearing pin of the bit with a deposit including a multiplicity of tungsten carbide particles in a

high temperature resistant metal matrix. The tungsten carbide particles are introduced into the deposit using a welding rod that combines the tungsten carbide particles with hard metal welding rod materials.



3,823,031
THREAD BONDED WITH SEGMENTED COPOLYESTER ELASTOMERS

Akira Tsukamoto, 4308 Miller Road, Apt. 207, Wilmington, Del. 19802, and Robert K. Tubbs, 589 Morgan Drive, Lewiston, N.Y. 14092

No Drawing. Filed Aug. 9, 1971, Ser. No. 170,287
Int. Cl. B32b *27/02*
U.S. Cl. 117—138.8 F **8 Claims**

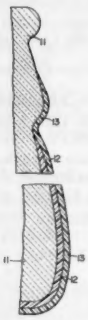
Multi-filament thread bonded with a thermoplastic segmented copolyester elastomer consisting essentially of a multiplicity of recurring short chain ester units and long chain ester units joined through ester linkages, said short chain ester units amounting to about 15 to 65 percent by weight of said copolyester and being derived from dicarboxylic acid such as terephthalic acid, or a mixture of terephthalic and isophthalic acids, and an organic diol such as butanediol, and said long chain ester units amounting to about 35 to 85 percent by weight of said copolyester and being derived from dicarboxylic acid such as terephthalic acid, or a mixture of terephthalic and isophthalic acids, and a long chain glycol such as polytetramethylene ether glycol, said copolyester having a melt index of less than about 150 and a melting point of at least about 125° C. The bonding agent may be modified with one or more thermoplastic resins or modifiers.

3,823,032
GLASS BOTTLES COATED WITH MULTI-PROTECTIVE FILM LAYERS

Nobuo Ukai, Yanagawa, Japan, assignor to Tsukihoshi Kasei Kabushiki Kaisha (also known as Moon-Star Chemical Corporation), Kurume-shi, Fukuoka-ken, Japan

Filed July 27, 1972, Ser. No. 275,741
Int. Cl. B44d *1/14;* **C03c** *17/32*
U.S. Cl. 117—172 **10 Claims**

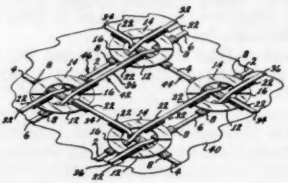
A coated glass bottle designed to prevent scattering of the broken glass upon breakage is provided herein, said coated glass bottle containing a multilayer protective film on its surface, the first or inner film being a high polymer having a moderate adhesive strength of e.g. 0.1 kg./cm. to 3.0 kg./cm. with respect to the glass surface and capable of being stretched to an extent greater than 150% of the original length of the film and exemplified by such materials as natural rubber, and an outer protective coating of a synthetic resin covering the entire surface of the inner film, said outer film being such materials as epoxy resins, polyurethane, etc., having a mechanical strength greater than about 200 kg./cm.^{2}, and having such properties as water-resistance, oil-resistance, etc., and wherein the adhesive strength between the inner and outer film is equal to the adhesive strength between the glass bottle and the inner film. A method of preparing said coated bottles is also provided herein. The coated bottles are especially suited for bottling such beverages as beer and carbonated beverages wherein internal gas pressure is exerted on the inner surface of the glass bottles.



3,823,033
METHOD OF FORMING A HIGH DENSITY PLANAR CORE MEMORY

Clive Gene Leonard, Lawndale, and Eliot Stone, Los Angeles, Calif., assignors to The National Cash Register Company, Dayton, Ohio

Filed Mar. 9, 1972, Ser. No. 233,061
Int. Cl. C23c *13/02, 13/04*
U.S. Cl. 117—212 **4 Claims**



A method of depositing magnetic cores and their associated conductors and an improved thin-film core system, in which segments of conductors passing under a core are first laid down, then insulated, then the core is deposited and insulated, and finally the remainders of the conductors, i.e., segments passing above the core, are deposited. The first-deposited segments of each conductor are left uninsulated in sufficient areas to assure full electrical contact with the last-deposited segments of the same conductor.

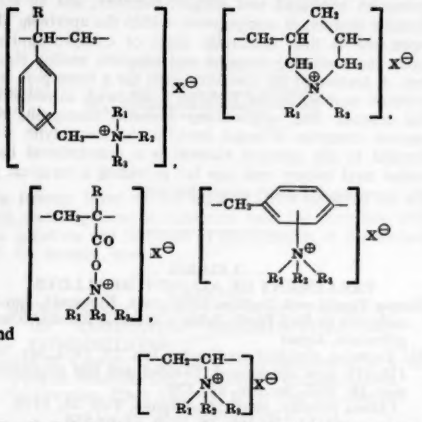
3,823,034
ELECTRO-SENSITIVE RECORDING BLANK

Taiji Higaki, Nishinomiya, Japan, assignor to Kanzaki Paper Mfg. Co., Ltd., Tokyo, Japan

No Drawing. Filed Sept. 26, 1972, Ser. No. 292,465
Claims priority, application Japan, Oct. 1, 1971, 46/77,326
Int. Cl. B41c *3/08;* **B44d** *1/18*
U.S. Cl. 117—218 **7 Claims**

The electro-sensitive recording blank comprises a backing layer of paper, an electro-conductive dark-colored coating on said backing layer and a white surface coating on said dark-colored coating, said white surface coating

including a white pigment, a binder and at least one polymer, said polymer comprising at least one kind of monomer unit which is selected from the group consisting of monomers represented by the following formulas:



and

wherein R is hydrogen or alkyl having 1–4 carbon atoms, each of R_1, R_2 and R_3 is alkyl, at least one of R_1, R_2 and R_3 is alkyl having at least 10 carbon atoms, and $X^{\ominus}$ is anionic radical.

3,823,035

ELECTRICALLY-CONDUCTIVE TEXTILE FIBER

John H. Sanders, Denbigh, Va., assignor to Dow Badische Company, Williamsburg, Va.

No Drawing. Filed July 14, 1972, Ser. No. 271,837
Int. Cl. C09c *1/44*; D02g *3/00*
U.S. Cl. 117—226 **6 Claims**

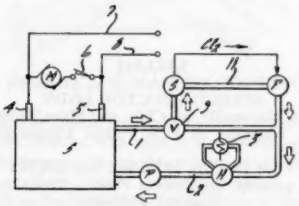
Finely-divided, electrically-conductive particles are uniformly suffused in a filamentary polymer substrate as an independent phase in an annular region located at the periphery of the filament and extending the entire length thereof. The electrically-conductive particles are employed in an amount sufficient to render the electrical resistance of the filament not more than about 10^9 ohms/cm. The filament finds special utility in the fabrication of antistatic fabrics and floor coverings.

3,823,036

SECONDARY BATTERY COMPRISING MEANS FOR FORMING HALOGEN HYDRATE SOLID BUBBLE SHELLS

Harry K. Bjorkman, Jr., Birmingham, Mich., assignor to Energy Development Associates, Madison Heights, Mich.

Filed May 26, 1972, Ser. No. 257,262
Int. Cl. H01m *35/00, 31/00*
U.S. Cl. 136—6 F **6 Claims**



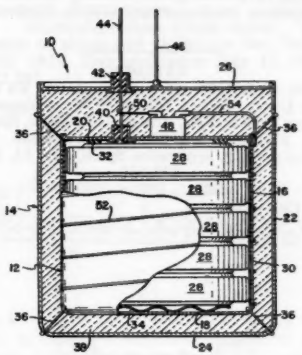
An apparatus and process for making halogen hydrate whereby a halogen gas is introduced in the form of a plurality of upwardly rising bubbles into the lower portion of a body of an aqueous solution whereby a reaction takes place during the ascent of the gaseous bubbles to produce a solid halogen hydrate shell or layer enveloping each of the bubbles which float as a stable foam layer on the surface of the solution. The resultant foam of halogen hydrate is separated from the aqueous solution, whereafter it is drained and transferred by suitable conveying means to a location remote from the apparatus.

3,823,037

IMPLANTABLE BATTERY

Elton J. Cairns, Downers Grove, Albert A. Chilenskas, Western Springs, and Hiroshi Shimotake, Hinsdale, Ill., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed July 20, 1972, Ser. No. 273,669
Int. Cl. H01m *43/00*
U.S. Cl. 136—6 F **9 Claims**



This invention consists of an implantable secondary electrochemical battery capable of use as a power source for an artificial heart. The battery includes an enclosed, evacuated cylindrical inner housing securely supported within an enclosed, evacuated cylindrical outer housing with a plurality of sealed, high-temperature secondary electrochemical cells immobolized within the inner housing and electrically connected in series. The battery further includes thermal insulation material located between the two housings, insulated electrical leads, feedthroughs located in the housings to enable the passage of one of the leads into the battery, and a thermal switch and heater wire located between the two housings to enable initial heating of the electrochemical cells to operating temperature and for maintaining this temperature throughout battery operation.

3,823,038

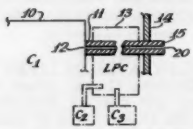
CONTINUOUS BLEED FUEL CELLS

Dimitri Gidaspow, Robert W. Lyczkowski, and Bernard S. Baker, Chicago, Ill., assignors to Institute of Gas Technology, Chicago, Ill.

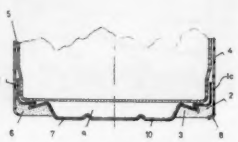
Continuation of application Ser. No. 844,406, July 24, 1969. This application Mar. 6, 1972, Ser. No. 232,214
Int. Cl. H01m *27/00*
U.S. Cl. 136—86 R **1 Claim**

Apparatus and method of operation of fuel cells by means of a controlled bleed at the "dead-end" of electrode gas compartments to continuously remove impurities, inevitably present in even ultra-pure fuels, which accumulate and cause a drop in voltage and current during the lifetime of the cells. The bleed at such locations establishes a steady state fuel-impurity concentration distribu-

tion in the cell resulting in improved electrical characteristics. The preferred rate of bleed may be only slightly greater than the percentage of input of impurities or inerts coming in with the reactant or fuel gas. The complicated and heavy valving apparatus, undesirable voltage transients, power interruption, and permanent loss of electrolyte of prior art periodic or recycle purge systems are avoided by the pesent constuction and method. Apparatus and method of providing supplemental thrust for spacecraft propulsion, navigation and altitude control are also disclosed.



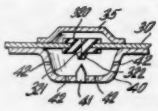
3,823,039
SEALING CLOSURE FOR ELECTRIC BATTERIES
Demetrio Lopez Sanchez, Madrid, Spain, assignor to Pilas Secas Jupiter, S.A., Tolosa, Guipuzcoa, Spain
Filed July 5, 1972, Ser. No. 269,088
Claims priority, application Spain, Dec. 24, 1971, 175,654
Int. Cl. H01m *1/02*
U.S. Cl. 136—133 **4 Claims**



Sealing closure for electric batteries includes, in the bottom of the anode, a metal tray provided on the periphery of its base with a zig-zag cross-sectional profile and in its central zone with a projection to the outside, which is covered internally by a film of anti-corrosive product.

The outer zone of the tray surrounding the central projection is provided with a thermoplastic material, leaving free the aforesaid outer central projection of the base of the tray.

3,823,040
BATTERY SEALING METHOD RECEPTIVE TO INJECTION FILLING
Bruce E. Jagid, Whitestone, N.Y., assignor to Power Conversion, Inc., Mount Vernon, N.Y.
Filed Aug. 29, 1972, Ser. No. 284,580
Int. Cl. H01m *1/02*
U.S. Cl. 136—162 **6 Claims**



A non-aqueous hermetically sealed battery cell including an electrode assembly in an anhydrous liquid electrolyte under pressure is formed by necking a metal casing, closed at one end, a predetermined distance from the other end and seating upon said neck an assembly including a thrust ring, an insulating member, and a hermetic sealing member. The hermetic sealing member comprises an apertured seal support member, and an elastomeric septum, in compression, within the aperture. The open end is then uniformly upset or crimped to bear upon the insulating member and hermetic sealing member. A feature of the invention calls for a three part seal support member in the form of a sandwich surrounding the septum. The sandwiching elements contiguous the septum comprise a metal inert to the electrolyte; clad bonded to the external element is a conventional cold rolled steel battery end cap for providing a terminal of the conventional easily solderable type.

3,823,041
TREATMENT OF ALUMINUM ALLOYS
Kazuo Tazaki and Toshiro Kobayashi, Kawasaki, Japan, assignors to Fuji Denki Seizo Kabushiki Kaisha, Kanagawa-ken, Japan
No Drawing. Original application Jan. 27, 1971, Ser. No. 110,331, now abandoned. Divided and this application Apr. 26, 1972, Ser. No. 247,870
Claims priority, application Japan, Feb. 10, 1970, 45/11,726; July 24, 1970, 45/64,880
Int. Cl. C22f *1/04*
U.S. Cl. 148—2 **5 Claims**

A new aluminum alloy composed of from 0.01 to 0.8 percent each of magnesium and iron, from 0.001 to 0.3 percent of beryllium, and a remainder of aluminum and impurities. This alloy can be caused to exhibit effectively its excellent properties by treating it as the beryllium therein is maintained in a solid-solution state and prevented from precipitation.

3,823,042
PROCESS FOR THE DECARBONIZATION OF STEEL
Fritz Bölling, Homberg, Armin Mayer and Mavendra Parikh, Dinslaken, and Friedrich Toussaint, Wulfrath-Rutzkausen, Germany, assignors to Stahlwerke Bochum Aktiengesellschaft, Bochum, Germany
Filed Feb. 22, 1972, Ser. No. 227,921
Claims priority, application Germany, Feb. 20, 1971, P 21 08 242.8
Int. Cl. H01f *1/04*
U.S. Cl. 148—112 **2 Claims**

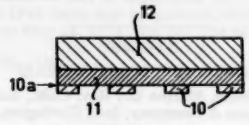
A process for the decarbonization of electrical sheet steel which comprises combining the decarbonization with the development of magnetic characteristics of the steel into one single step by contacting a steel strip or sheet at 1,000° C. to 1,300° C. with a mixture of water vapor and hydrogen wherein the ratio of the partial pressure of water vapor to the partial pressure of hydrogen is controlled between 2×10^{-4} to 3×10^{-3}, at a temperature of 1,000° C. and 2×10^{-4} to 10^{-1} at a temperature of 1,300° C.

3,823,043
METHOD OF MANUFACTURING SEMICONDUCTOR BODY
Elie Andre, Herouville, St.-Clair, and Marc Mahieu, Caen, France, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 20, 1971, Ser. No. 209,763
Claims priority, application France, Dec. 23, 1970, 7046399, 7046400
Int. Cl. H01l *7/00*
U.S. Cl. 148—171 **6 Claims**

A semiconductor body comprising a monocrystalline substrate which is covered with a monocrystalline ternary

layer which consists of a metalloid of the fifth group of the Periodic system of Mendeleev and two metals of the third group of the same Periodic system.

The body is characterized in that the concentration in



the ternary layer of the most reactive material of the two metals present is minimum near the interface with the substrate and increases in the direction of the surface of the ternary layer.

3,823,044

INCREASING THE DETONATION PRESSURE OF AMMONIUM NITRATE/FUEL OIL COMPOSITIONS

George R. Cowan, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Aug. 30, 1972, Ser. No. 284,915
Int. Cl. C06b *1/04*
U.S. Cl. 149—21 **7 Claims**

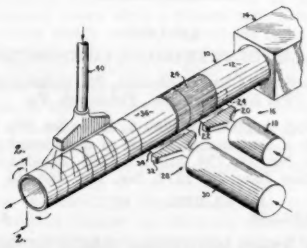
The detonation pressure of a bulk ammonium nitrate/fuel oil (ANFO) composition is increased substantially independently of its detonation velocity by the addition of iron oxide, calcium carbonate, and/or calcium sulfate as a densifying agent to produce a mixture containing about 8–30% densifying agent. A detonating composition containing a blend of coarse and fine AN, fuel oil, and iron oxide, calcium carbonate, and/or calcium sulfate, and a process for shock-synthesizing diamond by use of the detonating composition.

3,823,045

PIPE COATING METHOD

Ralph Hielema, Calgary, Alberta, Canada, assignor to Hielema-Emmons Pipe Coating Ltd., Calgary, Alberta, Canada

Continuation-in-part of abandoned application Ser. No. 130,293, Apr. 1, 1971. This application July 31, 1972, Ser. No. 276,832
Int. Cl. B29c *27/28*; B31c *9/00*; B65h *81/00*
U.S. Cl. 156—188 **11 Claims**



A method of enveloping an elongated joint of pipe with a protective coating. The pipe is maintained at approximately the temperature of the ambient air prior to extrusion of an adhesive layer to the pipe surface. Since the pipe is not preheated prior to application of the adhesive the quantity of heat to be removed during the cooling process is substantially reduced. The pipe is simultaneously rotated about its axis and advanced longitudinally to effectively wrap a sheet of extruded adhesive around the pipe in a spiral manner. The protective outer layer of the coating, which is a thermoplastic resin, is extruded onto the adhesive immediately after the latter has been applied to assure bonding between the hot extrudates of adhesive and resin. The sheet of thermoplastic resin extrudate is carefully controlled to assure it does not become elongated. This minimizes any cooling which would cause stresses in the final coating. The rate of advancement of the pipe surface away from the extruded resinous sheet is also controlled to not exceed 5% greater than the linear rate of advancement of the extrudate. This further prevents stresses from being built into the coating. The longitudinal rate of advancement of the pipe is controlled to assure that it will always be a fractional multiple of the width of the sheets of adhesive and resin, thus resulting in the placement of multiple plies of both resin and adhesive.

3,823,046

METHOD OF FORMING DECORATIVE SHEET

Iwao Yamagishi, Osaka, Japan, assignor to Eidai Sangyo Kabushiki Kaisha, Osaka, Japan

Continuation of abandoned application Ser. No. 65,082, Aug. 19, 1970. This application July 17, 1972, Ser. No. 272,207
Int. Cl. B32b *31/26*
U.S. Cl. 156—220 **4 Claims**

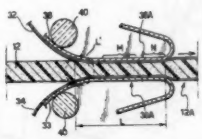
A decorative sheet and a process for forming the same. The sheet includes a polymerized translucent or transparent resin layer that has a concave or convex second pattern defined on the exterior surface thereof that is accurately oriented and in precise registry relative to a first pattern that is visible through said layer.

3,823,047

MANUFACTURING LAMINATES OF EXPANDED THERMOPLASTIC RESINS

Roberto Colombo, Turin, Italy, assignor to S.p.A. Lavorazione Materie Plastiche L.M.P. Turin, Italy

Filed July 26, 1972, Ser. No. 275,401
Claims priority, application Italy, Aug. 10, 1971, 6,987/71
Int. Cl. C09j *5/00*
U.S. Cl. 156—322 **2 Claims**



A thermoplastic resin foam web and a backing sheet are laminated by previously accumulating in the sheet an amount of heat at a temperature sufficient for heat-bonding by continuously passing the two through a lamination zone. The latter comprises a melting region for the web and sheet and a region in which the laminating pressure is continued under controlled temperature conditions preventing both dispersion of heat from the exposed face of

the backing sheet and delivery of external heat capable of softening the cellular structure of the foam web.

3,823,048

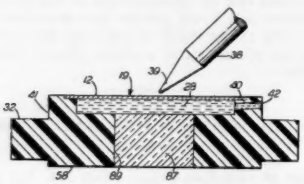
FLUIDIC MASKING

Harold Arthur Hetrich, Reading, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Original application June 7, 1971, Ser. No. 150,345, now Patent No. 3,701,705. Divided and this application Aug. 15, 1972, Ser. No. 280,905

Int. Cl. H01l 7/50

U.S. Cl. 156—345 7 Claims



In making a target for a television camera tube, it is necessary to thin the backside of a semiconductive substrate, which is opposite a face having a diode array thereon. To thin the substrate, it is positioned face down on a fluid nondeleterious to the substrate and diode array. The fluid is contained in a cavity of a holding device. The positioning is such that there is no space between the fluid and the substrate. An apertured top member is then mounted on the substrate and the holding device to retain the substrate on the fluid. The assembly of the holding device and top member with the substrate therebetween is immersed and rotated in an etchant to thin the backside of the substrate through the aperture of the top member. The fluid provides a tight seal on the face of the substrate to prevent the etchant from damaging such face and the diode array thereon. A vent extending from the cavity of the holding device to its outer edge assists in the subsequent removal of the substrate from the cavity.

3,823,049

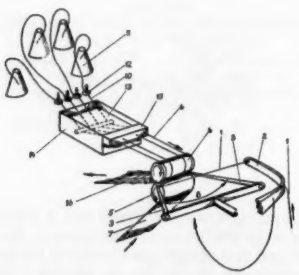
REINFORCED WEB MAKING MACHINE

Jan Vetrovec, Glendale, Calif. (% Oriental Trading Center, 5212 N. Yvonne Ave., San Gabriel, Calif. 91776)

Filed Aug. 3, 1972, Ser. No. 277,777

Int. Cl. D04h 3/12

U.S. Cl. 156—441 6 Claims



The technique described is a new method that will substitute usual knitting or weaving in manufacturing of long cloth strips having warp and woof threads.

The foundation of this method is a rotary way of forming reinforced web by using of pressing and pulling rollers in a roll stand. Web is reinforced by glued warp and also can be bonded to a dry base strip. There are three machines designed for various jobs depending on material of the yarn, desired quality of the web, speed of production etc.

3,823,050

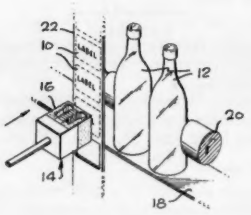
LABEL APPLICATOR HEAD

Herbert La Mers, Marina Del Rey, Calif., assignor to R. A. Jones & Company, Inc., Covington, Ky.

Filed Oct. 4, 1971, Ser. No. 186,138

Int. Cl. B65c 9/18, 9/26, 9/34

U.S. Cl. 156—493 17 Claims



A head for pressing a label against a rounded or other convexly shaped object so that even the extreme side portions of the label are firmly pressed down, including a flexible blanket whose forward face supports the label and a pair of resilient columns extending rearwardly from opposite sides of the blanket. As the head with a label thereon is thrust forward against a convex object and the blanket begins wrapping onto the object, the sides of the blanket begin moving towards one another and cause the forward ends of the columns to bend inwardly towards each other, so they can press the sides of the blanket hard towards the object to firmly press the label sides against the object. As the head is withdrawn from the object, the bent columns tend to unwrap the blanket to thereby minimize sliding contact of the blanket with the label that could result in frictional removal of the label.

3,823,051

B-STAGE POLYURETHANE COMPOSITIONS

Wen-Hsuan Chang, Gibsonia, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

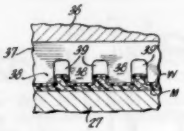
No Drawing. Application May 6, 1970, Ser. No. 35,286, which is a continuation-in-part of abandoned application Ser. No. 746,739, July 23, 1968. Divided and this application June 20, 1972, Ser. No. 264,656

Int. Cl. B32b 17/10, 27/40

U.S. Cl. 156—99 5 Claims

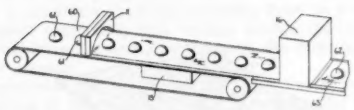
Curable B-stage polyurethanes suitable for use as interlayers for glass laminates comprise the reaction product of at least one hydroxy-containing ester having a terminal acrylyl or substituted-acrylyl group, an organic diisocyanate and a polyol. The compositions are stable at room temperature even when containing a free radical-producing initiator but cure in the presence of free radicals to a hard, thermoset state. The preferred diisocyanates include isocyanato-terminated polyether adducts of poly(oxypolymethylene) glycols.

3,823,052
QUILTED FABRIC AND METHOD OF PRODUCING THE SAME
Lawrence Hargett, Englewood, N.J., assignor to Philmont Manufacturing Company, Englewood, N.J.
Application Oct. 1, 1969, Ser. No. 868,959, which is a continuation-in-part of application Ser. No. 798,674, Feb. 12, 1969, both now abandoned. Divided and this application May 18, 1972, Ser. No. 254,801
Int. Cl. B31f *7/00*
U.S. Cl. 156—220 **9 Claims**



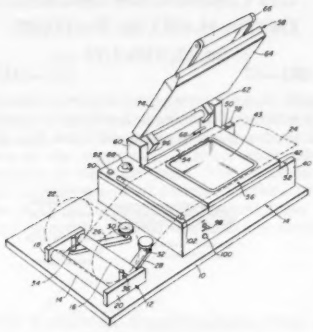
A quilted fabric is produced by laminating a web of nylon or other fiber having a thermoplastic polymeric face with active polar groups along the polymer chain and a lofty non-woven resilient mat of fibers having a highly polar thermoplastic binding resin and compressing and dielectrically heating the laminate along puff delineating lines to a temperature sufficient to bond the web and mat materials. Examples of polar groups are hydroxyl, nitrile, amide, mono-carboxy and isocyanate.

3,823,053
PACKAGING MACHINE
Melvin J. Straub, Minnetonka, and Thomas L. Schuette, Osseo, Minn., assignors to Possis Corporation, Minneapolis, Minn.
Application Mar. 1, 1971, Ser. No. 119,568, now Patent No. 3,755,523, which is a division of application Ser. No. 842,991, July 18, 1969, now Patent No. 3,596,432. Divided and this application Nov. 10, 1972, Ser. No. 306,028
Int. Cl. B29c *17/04*
U.S. Cl. 156—500 **2 Claims**



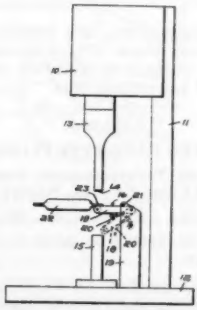
A packaging machine wherein a web of paperboard is continuously drawn along a defined path, under a loading device by which articles or products to be packaged are successively deposited upon the web to be carried thereby through a curtain or sheet of molten thermoplastic resin which debouches from a downwardly opening nozzle, to lay itself onto and form a covering film on the web and over any articles or products thereon. The mouth of the nozzle is a slit which extends transversely across a vacuum chamber by which any space between the close to the web while its mid-portion is spaced much farther from the web. The film covered web then travels across a vacuum chamber by which any space between the covering film and the web is evacuated and the film drawn tightly over the articles or products and against the web. A series of closely spaced parallel rollers across the top of the vacuum chamber with their axes transverse to the web supports the web, and certain of the rollers are driven to draw the web through the machine. Beyond the vacuum chamber, the web with the covered articles or products thereon enters a guillotine type cutoff station where it is cut into discrete units each of which is a complete package.

3,823,054
APPARATUS FOR HEAT-SEALING PACKAGES
Winton E. Balzer, 963 Central Ave., Needham, Mass. 02192, and Kenneth M. Knobel, 37 Percy Road, Lexington, Mass. 02173
Filed Feb. 9, 1972, Ser. No. 224,689
Int. Cl. B32b *31/00*; B65b *7/06*
U.S. Cl. 156—530 **7 Claims**



An apparatus is provided for heat-sealing a thermoplastic film onto the top of a tray containing food or the like. A hinged cover is provided with an oversized heating pad and is adapted to be lowered onto the film which has been drawn over a tray held in a cooperating die to heat-seal the film marginally to the tray. The dies are changeable to accommodate different sizes and shapes of trays while the same pad may be used throughout. A heated wire enclosed by a retractable shield cuts the film simultaneously with the heat-sealing operation to separate the film from the roll. A roll of film is mounted adjacent the sealing station in a cradle comprised of rollers with adjustable guides for positioning rolls of different sizes with respect to the die. Controls are provided for adjusting the temperature and the timing cycles according to the materials used.

3,823,055
ULTRASONIC CLEANING AND WELDING APPARATUS
Gerald L. Schulz, Holliston, and Raymond T. Mansur, Framingham, Mass., assignors to the United States of America as represented by the Secretary of the Army
Continuation of abandoned application Ser. No. 51,462, July 1, 1970. This application July 18, 1972, Ser. No. 272,914
Int. Cl. B23k *1/06*; B32b *31/16*
U.S. Cl. 156—580 **4 Claims**



Dry contaminants on seal interface surfaces of flexible packages are removed by causing the interface surfaces

to be vibrated by ultrasonic energy for a brief period of time prior to sealing.

3,823,056

ANTISTATIC FLOOR COVERING AND TEXTILE STRUCTURE

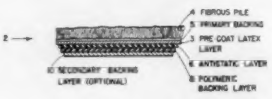
William J. Cooney, Hixson, Tenn., assignor to GAF Corporation, New York, N.Y.

Filed Jan. 15, 1973, Ser. No. 323,807

Int. Cl. B32b *3/16*

U.S. Cl. 161—67 17 Claims

Antistatic floor covering and textile products of enhanced durability to cleaning and reduced migration tendency are produced by applying between two polymeric



covering layers disposed beneath the textile or floor covering wear layer an antistatic composition consisting essentially of a mixture of

(a) an organic antistatic agent,

(b) a humectant which may be either a nonionic humectant, such as glycerin, or an ionic humectant such as calcium chloride, and

(c) when said humectant is a nonionic humectant, an electrolyte such as calcium chloride or sodium chloride and applying a polymeric backing coating over the antistatic layer, whereby the antistatic layer is disposed between the two polymeric covering layers.

3,823,057

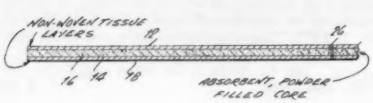
POWDERED TOILET PAPER

Karl H. Roberts, Flemington, N.J., and Sandford A. Haver, Rye, N.Y., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,372

Int. Cl. B32b *3/10*

U.S. Cl. 161—112 2 Claims



Toilet paper comprising a core impregnated with talc between two facing sheets of non-woven material. At least one of the sheets is an absorbent tissue while the other sheet is of polyethylene film.

3,823,058

FOLD-OVER FACE-TYPE FLOOR MAT

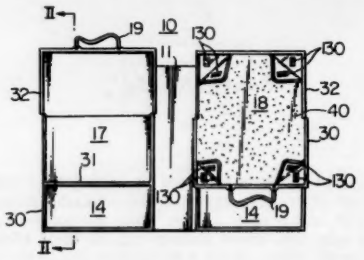
Mitsuji Yamaguchi, Toyoyama-mura, Japan, assignor to Universal Climb Co., Ltd., Nagoya, Japan

Filed Nov. 6, 1972, Ser. No. 303,818

Int. Cl. B32b *3/00;* B62d *25/20*

U.S. Cl. 161—119 15 Claims

A fold-over face-type floor mat which comprises a flexible base sheet member and a flexible reversible face member integrally formed with or detachably secured to the base sheet member in the center in the longitudinal direction of the latter to divide the upper surface of the sheet member into two half surface portions. The reversible face member normally lies on either one of the two half surface portions of the base sheet member and is manually reversed. One face of the reversible face member provides a foot-in-footgear support face in cooperation with one of the two half surface portions of the base sheet member and the other face provides a bare foot support face in cooperation with the other half surface portion of the base sheet member. The bare foot support face may be



covered with a cloth cover sheet or carpet which is detachably secured to the face or has short fiber pile embedded therein. The reversible face member may be alternatively formed by gluing portions of two identical flexible base sheet members together back to back.

3,823,059

FIBROUS STRUCTURES

Guy J. Jacquelin, Grenoble, France, assignor to Novipro, Grenoble, France

Filed July 13, 1972, Ser. No. 271,227

Claims priority, application France, July 15, 1971, 7125960

Int. Cl. B28b *23/04;* B32b *13/02, 13/14*

U.S. Cl. 161—150 3 Claims

This invention relates to a fibrous structure constituted at least in part by so-called annular fibres in the form of a closed loop and said annular fibres are mixed with so-called linear fibres having free ends.

3,823,060

POLYURETHANE INTERLAYER FOR LAMINATED SAFETY GLASS

Charles E. McClung, Kettering, and David G. Glasgow, Dayton, Ohio, assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 219,175, Jan. 19, 1972, which is a continuation-in-part of application Ser. No. 58,731, July 27, 1970, both now abandoned. This application Dec. 8, 1972, Ser. No. 313,492

Int. Cl. B32b *17/10*

U.S. Cl. 161—190 9 Claims

Disclosed herein are polyurethane interlayers and laminated glazing units prepared therefrom. The interlayers

are prepared from (1) an isomeric mixture of 4,4'-methylene-bis-(cyclohexylisocyanate); (2) a polyester having a melting point above 42° C. which is the condensation product of a dicarboxylic acid and a dihydric compound; and (3) an alpha-, omega-diol containing from 2 to 16 carbon atoms. Laminated safety glass prepared from the foregoing polyurethane interlayer exhibits excellent impact strength over a broad range of temperatures and freedom from discoloration as well as excellent clarity and edge stability.

3,823,061

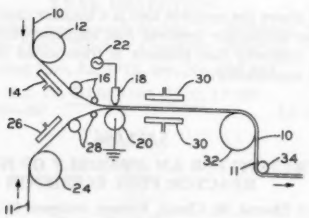
COMPOSITE BARRIER FILM AND METHOD OF MAKING THE SAME

Paul D. Frayer and H. Harald Lutzmann, Cleveland Heights, Ohio, assignors to Molecular Design Incorporated, Cleveland, Ohio

Continuation-in-part of abandoned application Ser. No. 152,436, June 11, 1971. This application June 2, 1972, Ser. No. 259,112

Int. Cl. B32b *27/08*

U.S. Cl. 161—254 **8 Claims**



Two or more plastic films may be bonded together to form a composite sheet by subjecting them to a surface treatment comprising high voltage electric discharge of selected intensity, and then bringing the films together under pressure.

A preferred film suitable for use as a wrapping material comprises at least one layer of a polyolefin film and at least one layer of a film containing acrylonitrile polymer. Preferably the acrylonitrile polymer-containing film is a co-polymer of acrylonitrile and a rubber. Similarly, polyolefin films may be bonded to, respectively, nylon and polyester films. Two, three or more plies of film may be bonded together. All such composite films are formed by bonding together the polyolefin and other film layer or layers by means of the aforesaid corona discharge treatment.

A specified intensity of treatment is required; insufficient or excessive electrical treatment will cause poor adhesion between film layers. The two or more films may be corona-discharge treated at ambient temperature or at an elevated temperature. Generally, more intensive electric discharge treatment is required for films treated at a lower temperature as compared to treatment at a higher temperature. The films may be corona-discharge treated either immediately after manufacture of the films while they are still at an elevated temperature and have not yet cooled to ambient or room temperature, or earlier-made film may be heated prior to treatment. The two or more films may be treated separately, or treated simultaneously by a single electrode pair, and then formed into a single, multi-layered composite sheet.

3,823,062

TWIN-WIRE PAPERMAKING EMPLOYING STABILIZED STOCK FLOW AND WATER FILLED SEAL (DRAINAGE) BOXES

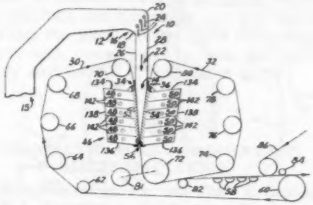
George T. Ward, Greenwich, and John A. Means, Norwalk, Conn., and Charles A. Lee and Warren R. Furbeck, Knoxville, Tenn., assignors to International Paper Company, New York, N.Y.

Filed Feb. 28, 1972, Ser. No. 230,007

Int. Cl. D21f *1/00, 11/04*

U.S. Cl. 162—123 **21 Claims**

In the inlet section of a papermaking machine, stock is accelerated and passed through a relatively long and straight passageway, thereby stabilizing substantially the entire flow of the suspension to move uniformly in the same direction at the same speed. The stabilized suspension flows between a pair of forming carriers, preferably within the inlet section. Water is drained from the suspension by forcing it through the forming carriers into



seal boxes supporting the carriers, thereby forming a web, later dried to form paper. The seal boxes are disposed successively, and the flow therethrough may be separately controlled to control web formation. The seal boxes are kept flooded to assure that both sides of each of the carriers are covered with water.

3,823,063

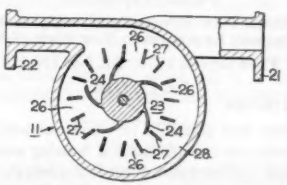
METHOD AND SYSTEM FOR PULP STOCK SUPPLY

Thomas R. Callahan, Milford, Herbert K. Kingsbury, Sr., Cincinnati, and Thomas E. Sutton, Springdale, Ohio, assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Aug. 11, 1972, Ser. No. 279,978

Int. Cl. D21f *1/00*

U.S. Cl. 162—212 **3 Claims**



A method and system for supplying pulp stock to a sheet forming device which utilizes a rotary pump to assist in mixing and moving the pulp stock. Means are provided for dividing the pulp stock into a plurality of individual streams as the stock leaves the pump impeller to thereby decrease the magnitude of the pressure pulses while increasing the frequency of pulses and then recombining the stock into a single stream for delivery to the sheet forming device.

ERRATUM

For Class 162—263 see:
Patent No. 3,823,371

3,823,064

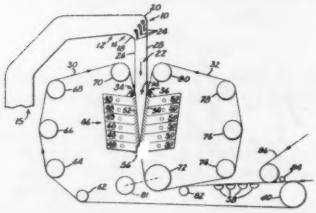
TWIN-WIRE PAPERMAKING APPARATUS WITH STOCK INLET PASSAGEWAY HAVING STRAIGHT AND PARALLEL WALLS

George T. Ward, Greenwich, Conn., assignor to International Paper Company, New York, N.Y.

Continuation-in-part of application Ser. No. 796,131, Feb. 3, 1969, now Patent No. 3,645,842. This application Feb. 28, 1972, Ser. No. 230,006

Int. Cl. D21f *1/00*

U.S. Cl. 162—301 **3 Claims**



In the inlet section of a papermaking machine, stock is accelerated and passed through a relatively long and straight passageway, defined by substantially impervious walls which are substantially parallel to each other, thereby stabilizing substantially the entire flow of the suspension to move uniformly in the same direction at the same speed. A pair of forming carriers enter the inlet section, and run along the terminal sections of the walls of the passageway, capturing the stabilized suspension therebetween and carrying it out the outlet of the passageway prior to any substantial web formation and into a forming section. Water is removed from the suspension in the forming section to form a paper web.

3,823,065

APPARATUS FOR SELECTIVELY TRANSPORTING FUEL ELEMENTS

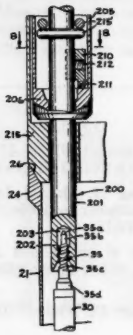
Cecil R. Jones, New Haven, Conn., assignor to Transfer Systems Incorporated, New York, N.Y.

Filed Sept. 7, 1971, Ser. No. 178,175

Int. Cl. G21c

U.S. Cl. 176—39 **7 Claims**

A nuclear fuel assembly in which vertically disposed fuel elements are spaced within a housing generally of a rectanguloid configuration. Each fuel element includes an upper end plug and lower end plug. Vertically spaced support plates are disposed in the housing with suitable openings to receive the upper and lower end plugs of the fuel elements for supporting the fuel elements with the housing. The upper plate is removable from the housing and the lower plug is detachably connected to the lower plate. A grapple having lifting plates with pins enter recesses formed in the housing for enabling the housing to be raised. After the fuel assembly is raised by the grapple, leaf spring retainers of the upper plate are dislodged for removing the upper plate from the housing. Now, the fuel elements can be removed selectively and individually from the fuel assembly by a removal tool. Aligned with and disposed above the removal tool is a transfer casing for housing the selectively removal fuel element while the selectively removed fuel element is transported to and from a fuel reprocessor.



3,823,066

JACKETING FOR AN ASSEMBLY OF NUCLEAR REACTOR FUEL ELEMENTS

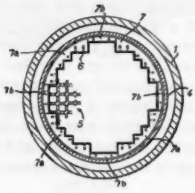
Paul Thomè, St. Cloud, France, assignor to Babcock-Atlantique, S.A., Paris, France

Filed Apr. 27, 1972, Ser. No. 248,074

Claims priority, application France, Apr. 29, 1971, 7115325

Int. Cl. G21c *3/20*

U.S. Cl. 176—66 **5 Claims**



Electron beam welding is used to join the lateral plates that surround the fuel elements in a nuclear reactor core without deformation through a proper welding sequence. Baffle-plates or partitions, moreover, also are stud-welded to the lateral plates without deformation through the electron beam process. The upper circumferential part of the completely assembled structure ultimately is welded to the reactor core barrel. Screwjacks also are provided to quickly position the structure over a lower grid. This technique eliminates the usual threaded fasteners and the need for accurate lower core barrel machining operations.

3,823,067

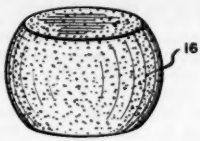
SHAPED NUCLEAR FISSIONABLE BODIES

George Stern, Mamaroneck, N.Y., and William F. Roche, Stamford, Conn., assignors to United Nuclear Corporation, Elmsford, N.Y.

Filed Aug. 2, 1971, Ser. No. 168,107

Int. Cl. G21c *3/04*

U.S. Cl. 176—66 5 Claims



Shaped nuclear fuel pellets for use in rod-type fuel elements and particularly shaped fuel pellets formed by sintering fissionable powdered materials.

3,823,068

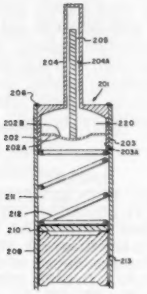
FUEL ELEMENT END CAP FOR LEAK DETECTION

Dan C. Worlton and Joseph Ryden, Jr., Richland, Wash., assignors to Jersey Nuclear Company, Bellevue, Wash.

Filed Nov. 22, 1971, Ser. No. 200,698

Int. Cl. G21c *3/03, 3/10, 17/00*

U.S. Cl. 176—80 13 Claims



Nuclear reactor fuel element leakage can now be determined without removing the fuel elements from the reactor core by employing an upper fuel element end cap having a flexible means which is sensitive to pressure changes within the fuel element and which activates an eddy current effecting means, and by placing an eddy current near the end cap.

3,823,069

PREPARATION OF L(−)-γ-AMINO-α-HYDROXY-BUTYRIC ACID

Takeo Miyaki, Yokohama, and Kiyoshi Matsumoto, Tokyo, Japan, assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Apr. 5, 1972, Ser. No. 241,427

Int. Cl. C12b *1/00*

U.S. Cl. 195—2 2 Claims

The specification discloses a microbiological process for the preparation of L(−)-γ-amino-α-hydroxybutyric acid from a racemic mixture of isomers.

3,823,070

PROCESS FOR PRODUCING A STRAIGHT CHAIN DICARBOXYLIC ACID, AN OMEGA-HYDROXY FATTY ACID, AND AN OMEGA-1-KETO FATTY ACID

Sachio Minato and Yoichiro Mikami, Kawasaki, and Kazuo Hayashi, Tokyo, Japan, assignors to T. Hasegawa Company, Ltd., Tokyo, Japan

No Drawing. Filed Dec. 23, 1971, Ser. No. 211,679

Int. Cl. C12b *1/00*

U.S. Cl. 195—28 R 24 Claims

A process for producing a straight chain dicarboxylic acid, an omega-hydroxy fatty acid, and an omega-1-keto fatty acid, which comprises culturing a n-paraffin-assimilating strain belonging to the genus *Corynebacterium* which strain has an ability to produce the straight chain dicarboxylic acid, omega-hydroxy fatty acid, and omega-1-keto fatty acid simultaneously, in a culture medium containing a nitrogen source, minerals, and a n-paraffin having at least 10 carbon atoms as a carbon source under aerobic conditions, and recovering in a high yield an acid selected from the group consisting of the straight chain dicarboxylic acid, omega-hydroxy fatty acid, and omega-1-keto fatty acid formed in the culture liquid.

3,823,071

PROSTATIC ACID PHOSPHATASE DETERMINATION

Alejo V. Roy, Pittsburgh, Pa., and Mary E. Brower, Toms River, N.J., assignors to Worthington Biochemical Corporation, Freehold, N.J.

No Drawing. Filed Dec. 21, 1970, Ser. No. 100,345

Int. Cl. G01n *31/14*

U.S. Cl. 195—103.5 R 4 Claims

Sodium and other alkali metal salts and alkaline earth metal salts of thymolphthalein monophosphate are disclosed as substrates which exhibit a high order of specificity in the quantitative detection of prostatic acid phosphatase.

3,823,072

ANALYSIS OF PROTEOLYTIC ENZYMES

Michel Hooreman, 9 Rue Marbeau, Paris 16, France

Original application Feb. 19, 1970, Ser. No. 12,595, now Patent No. 3,683,069. Divided and this application June 9, 1972, Ser. No. 261,522

Int. Cl. G01n *31/14*

U.S. Cl. 195—103.5 R 4 Claims

The invention provides proteolytic enzymes which, on administration, optimise the *in vivo* viscosity of the mucuses and which are characterised by bringing the magnitude of the *in vitro* viscosity to a value generally between those values obtained when mucus is subjected to identical treatments with trypsin and chymotrypsin.

3,823,073

CALCINING COKE IN VERTICAL KILN

Ari A. Minkkinen, Beaver Brook Garden Apts. H–19, Lincoln Park, N.J. 07035

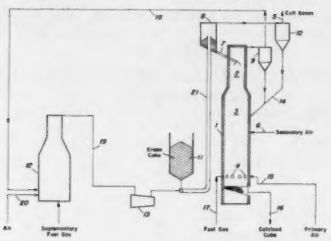
Filed Jan. 26, 1972, Ser. No. 220,882

Int. Cl. C10b *49/06, 49/10*

U.S. Cl. 201—25 7 Claims

A new method of calcining coke in a vertical kiln in two zones to shorten the kiln residence time and to provide efficient heat transfer to the coke particles. Green coke is dried, preheated and fed to a choking zone of

a vertical kiln for calcining in suspension with countercurrent flow of ascending flue gas; then further calcined in a free fall zone of the kiln by contact with ascending



combustion gas. Coke is retained in a radiant-heat-soaking zone before removal for cooling. Fines are recovered for calcining and heat in the flue gas is recovered and ultilized.

3,823,074

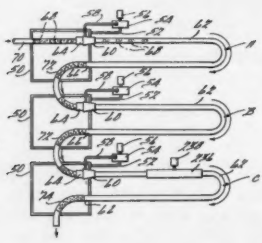
METHOD FOR ELECTROPLATING WORKPIECES

Louis J. Minbiole, Jr., Detroit, Chester G. Clark, Grosse Pointe Woods, and John W. Neumann, Birmingham, Mich., assignors to Oxy Metal Finishing Corporation, Warren, Mich.

Original application Nov. 12, 1968, Ser. No. 774,923, now Patent No. 3,664,354. Divided and this application Mar. 6, 1972, Ser. No. 231,951

Int. Cl. C23b *5/08*

U.S. Cl. 204—23 **4 Claims**



A method for simultaneously treating and conveying workpieces and an apparatus for practicing the method by which a rapidly moving confined stream of a treating fluid is formed into which workpieces are introduced for entrainment and conveyance thereby and are subsequently extracted from the stream and thereafter successively introduced, if desired, into separate succeeding streams in an ordered sequence, thereby performing a multiple-stage treatment of the workpieces.

3,823,075

PREVENTION OF HYDROGEN EMBRITTLEMENT

Austin Phillips, Santa Monica, Calif., assignor to McDonnell Douglas Corporation

No Drawing. Filed Dec. 28, 1971, Ser. No. 213,157

Int. Cl. C23f *17/00;* **B01k** *3/00*

U.S. Cl. 204—38 B **15 Claims**

A method of preventing hydrogen embrittlement of parts which are normally protected from corrosion by sacrificial coatings whose cathodic corrosion protection reaction results in free hydrogen, by including a rare earth metal in the coating process which acts as a hydrogen getter to prevent the hydrogen generated from penetrating and embrittling the corrosion protected part.

3,823,076

ZINC ELECTROPLATING ADDITIVE

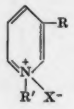
John Derek Rushmere, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 256,179, May 23, 1972, now Patent No. 3,769,184. This application May 2, 1973, Ser. No. 356,432

Int. Cl. C23b *5/12, 5/46*

U.S. Cl. 204—55 R **3 Claims**

Aqueous addition agents for zinc electroplating baths are provided which have dissolved therein (a) a pyridinium compound of the general formula:

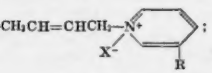


wherein

R is —$CONH_2$, —CN, —CHO or —COOR″;
R′ is an alkyl group of 1–4 carbon atoms,

—$CH_2CH{=}CH_2$, —$CH_2C{\equiv}CH$,

—$CH_2CH{=}CHCH_2X$, —CH_2COOR'' or



R″ is an alkyl group of 1–4 carbon atoms; and
X^- is a halogen ion; and

(b) a polystyrenesulfonate, a polyvinylpyrrolidone, a polyoxyalkyldiamine, a water-soluble quaternized condensation product of an epihalohydrin and a polyamine, or a water-soluble condensation product of a benzene or a naphthalene sulfonic acid, or a salt thereof, with formaldehyde, said condensation product containing at least 2 benzene or naphthalene sulfonic acid groups connected with each other by methylene bridges.

3,823,077

ELECTROLYTIC PROCESS FOR PREPARING DIALKYLTIN COMPOSITIONS

Harris Ellsworth Ulery, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 191,903, Oct. 22, 1971. This application Aug. 3, 1972, Ser. No. 277,603

Int. Cl. C07b *29/06;* **C07f** *7/22*

U.S. Cl. 204—59 QM **22 Claims**

An electrolytic process for preparing dialkyltin compositions by electrolyzing a C_{1-10} alkyl chloride or bromide in contact with a liquid electrolyte and a tin cathode at a current density sufficiently high to effect formation of said dialkyltin compositions.

3,823,078

PRODUCTION OF FLUIDIZED ALUMINA REDUCTION CELL FEED

Leland Stanford Beeler, Richmond, Va., assignor to Reynolds International, Inc., Richmond, Va.

No Drawing. Filed Dec. 14, 1972, Ser. No. 315,275

Int. Cl. C01b *7/22;* **C22d** *3/12*

U.S. Cl. 204—67 **3 Claims**

A fluoridated calcined alumina suitable for use as aluminum reduction cell feed is prepared by calcining alumina hydrate, especially Bayer process alumina hydrate, and introducing a source of fluorine such as HF, which may also be derived from cell waste gases, so as to achieve a fluorine content in the calcined alumina between about 1% and 3.5% by weight.

3,823,079
ALUMINUM REDUCTION CELL OPERATING SYSTEM

Leland Stanford Beeler, Richmond, Va., assignor to Reynolds International, Inc., Richmond, Va.

No Drawing. Filed Dec. 14, 1972, Ser. No. 315,276
Int. Cl. C22d 3/12
U.S. Cl. 204—67 12 Claims

In the operation of an aluminum reduction cell, to recover fluorine values in a dry system, the cell effluent gas containing hydrogen fluoride and other fluorine values is continuously withdrawn from the cell, and contacted with alumina, preferably that type of alumina which has been calcined at between about 975° C. and about 1150° C., whereby the alumina is fluoridated, and recovered for recycling to the reduction cell operation. The alumina may have advantageously incorporated therewith from about 1% to about 10% by weight of dry sodium carbonate for improved fluorine pick-up and retention, in which case even more highly calcined alumina may be utilized.

3,823,080
PROCESS FOR REMOVING COATING FROM A CATHODE RAY TUBE MASK MEMBER

Kenneth Speigel, Seneca Falls, N.Y., assignor to GTE Sylvania Incorporated

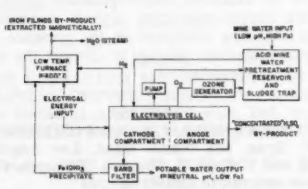
No Drawing. Filed Jan. 11, 1973, Ser. No. 322,624
Int. Cl. C23b 3/02
U.S. Cl. 204—141.5 3 Claims

A process is described for removing the temporary electrophoretically applied aperture-reducing coating from a color cathode ray tube mask member prior to final assemblage of the tube mask-screen assembly. The de-coating process includes immersing the coated aperture mask into an electrolyte solution that is non-corrosive to the mask material per se. An electrode is positioned within the electrolyte solution in a manner to be spatially related to the introduced mask. Opposite polarities of a D.C. potential are thence applied to the mask and electrode to effect a gaseous release at substantially the mask, whereupon, the ensuing bubbling physically removes the coating from the mask as aggregations of solid particulate material thereby restoring the mask apertures to their initial dimensioning.

3,823,081
ACID MINE WATER TREATMENT PROCESS

Richard W. Treharne, Xenia, and David E. Wright, Dayton, Ohio, assignors to Kettering Scientific Research, Inc., Yellow Springs, Ohio

Filed Dec. 18, 1972, Ser. No. 316,339
Int. Cl. C02c 5/12
U.S. Cl. 204—151 10 Claims

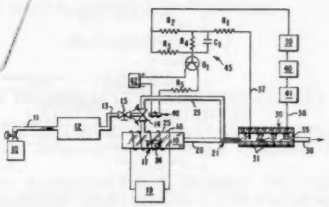


A process for electrolytically converting acid mine water to potable drinking water having a neutral pH and a negligible iron content is claimed. The electrolytic cell used in the present treatment process has a cathode compartment wherein the pH of the acid mine water is driven basic and an iron hydroxide precipitate is formed. A sand barrier separates the cathode compartment from the anode compartment. In the anode compartment the pH is driven more acidic as sulfuric acid is concentrated. Electrolytic hydrogen evolved in the cathode compartment and electrolytic oxygen evolved in the anode compartment are possible by-products as are the sulfuric acid produced and iron from the iron precipitate produced. Alternatively, the evolved hydrogen and oxygen may be used within the electrolytic system to increase the efficiency thereof.

3,823,082
MOISTURE ANALYSIS APPARATUS

Michael Czuha, Jr., San Gabriel, Calif., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 23, 1973, Ser. No. 335,116
Int. Cl. G01n 27/46
U.S. Cl. 204—195 W 5 Claims

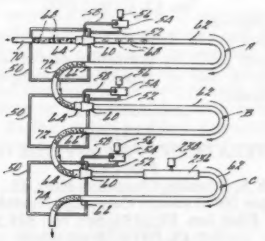


A moisture detection apparatus, of the electrolytic cell type, in which the moisture released from a moisture source is transported to the cell by a flow of dry gas. The use of a fast acting valving means permits the gas flowing to the cell to be alternated between moisture laden gas and dry gas, and the use of a nozzle by-pass located at the input orifice of the cell permits the change from moisture laden gas to dry gas entering the cell to occur directly at the input to the cell.

3,823,083
APPARATUS FOR ELECTROPLATING WORKPIECES

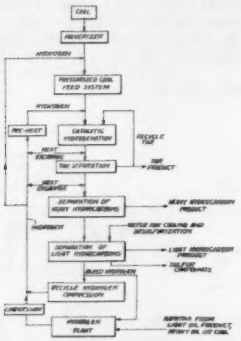
Louis J. Minbiole, Detroit, Chester G. Clark, Grosse Pointe Woods, and John W. Neumann, Birmingham, Mich., assignors to Oxy Metal Finishing Corporation, Warren, Mich.

Original application Nov. 12, 1968, Ser. No. 774,923, now Patent No. 3,664,354. Divided and this application Mar. 6, 1972, Ser. No. 232,167
Int. Cl. B01k 3/00; B65g 49/00
U.S. Cl. 204—275 8 Claims



A method for simultaneously treating and conveying workpieces and an apparatus for practicing the method by which a rapidly moving confined stream of a treating fluid is formed into which workpieces are introduced for entrainment and conveyance thereby and are subsequently extracted from the stream and thereafter successively introduced, if desired, into separate succeeding streams in an ordered sequence, thereby performing a multiple-stage treatment of the workpieces.

3,823,084
HYDROGENATION OF COAL
Wilburn C. Schroeder, 7316 Radcliffe Drive, College Park, Md. 20740
Filed June 30, 1972, Ser. No. 268,201
Int. Cl. C10g *1/06*
U.S. Cl. 208—10 17 Claims

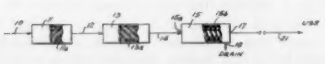


Pulverized coal, in the substantial absence of pasting or slurrying medium, is dispersed into a recycle stream of preheated, high-pressure hydrogen and the resultant reaction stream is passed through a hydrogenation zone containing a bed of hydrogenation catalyst at a rate sufficient to sweep unreacted coal, coal ash and hydrocarbon reaction products from the catalyst bed. Liquid and gaseous hydrocarbon products, after sulfur removal, are recovered from the product stream. A high hydrogen recycle ratio through the catalyst bed is employed to prevent catalyst inactivation by product hydrocarbons. A novel method of feeding the pulverized coal into the high pressure system from a hydrogen pressurized hopper without permitting the compressed hydrogen to expand to lower pressure, thereby reducing the energy requirements of the system, is disclosed.

3,823,085
DESORBING PETROLEUM HYDROGENATION CATALYSTS
Joseph E. Kochie, Carteret, N.J., assignor to Foster Wheeler Corporation, Livingston, N.J.
No Drawing. Filed Mar. 28, 1973, Ser. No. 345,827
Int. Cl. C10g *23/02*
U.S. Cl. 208—216 5 Claims

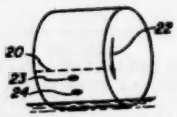
Solid catalyst is demasked in situ in the hydrogen of petroleum fluids by drastically decreasing the reactor pressure at a rate of approximately one-eighth of the total per hour.

3,823,086
PRETREATMENT FOR REVERSE OSMOSIS PROCESS
Kenneth A. Schmidt, Clarendon Hills, Ill., assignor to Culligan International Company, Northbrook, Ill.
Filed Jan. 22, 1973, Ser. No. 325,570
Int. Cl. B01d *13/00, 31/00*
U.S. Cl. 210—23 6 Claims



A pretreatment process for increasing the useful life of a reverse osmosis membrane comprising passing at least a portion of a reverse osmosis module influent through a strong basic type II anion exchange resin until carbonate ions are detected in the exchange resin effluent. A reverse osmosis module influent is thus controlled to continuously have a pH value below 8, which greatly increases the life of a cellulose acetate reverse osmosis membrane. The capacity of the anion exchange resin is extended beyond the conventional end point for such resin.

3,823,087
THIN LAYER CHROMATOGRAPHIC METHOD AND APPARATUS
Lloyd R. Snyder, Placentia, and Dennis L. Saunders, Anaheim, Calif., assignors to Union Oil Company of California, Los Angeles, Calif.
Filed June 14, 1971, Ser. No. 152,565
Int. Cl. B01d *15/08*
U.S. Cl. 210—31 C 29 Claims



Compounds are rapidly and efficiently separated from combinations thereof by a thin layer chromatographic method in which solvent is removed from the adsorbent after a predetermined travel substantially shorter than the total travel of the solvent during separation relative to said adsorbent, and the adsorbent is moved during said separation relative to the points of solvent addition and removal in the direction opposite the direction of solvent flow. In another embodiment the adsorbent can be employed as a continuous endless strand and recycled during separation.

3,823,088
POLLUTED WATER PURIFICATION
E. O. Box, Jr., and Floyd Farha, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company
No Drawing. Continuation-in-part of abandoned application Ser. No. 255,152, May 19, 1972. This application Mar. 2, 1973, Ser. No. 337,406
Int. Cl. C02b *1/34*
U.S. Cl. 210—63 15 Claims

Organically polluted waters are purified by contacting with a catalyst comprising zinc aluminate promoted with at least one metal active for initiating oxidative reactions in the liquid or gaseous phase under oxidizing conditions. In one embodiment, an aqueous stream obtained from the effluent of an oxidative dehydrogenation containing contaminating oxygen-containing organic materials is subjected to oxidizing conditions in the presence of a promoted zinc aluminate catalyst to convert the water to a potable aqueous product.

3,823,089
HEAT STORAGE COMPOSITION
John W. Ryan, 688 Nimes Road, Los Angeles, Calif. 90024, and Wallace H. Shapero, Torrance, Calif.; said Shapero assignor to said Ryan
No Drawing. Continuation-in-part of application Ser. No. 810,957, Mar. 27, 1969, now Patent No. 3,603,106. This application Aug. 2, 1971, Ser. No. 168,372
Int. Cl. C09k *3/18*
U.S. Cl. 252—70 5 Claims

A heat storage composition capable of releasing heat of solidification during cooling so as to give a plateau in the cooling curve, and having excellent physical properties including stability against settling during repeated heating-cooling cycles, good heat-transfer characteristics, and relatively high latent heat; comprising a mixture of aluminum

flake powder and paraffin in the relative proportions of from about 20% to 50% by weight of aluminum flake powder and from about 80% to about 50% by weight of paraffin.

3,823,090
PRODUCTION OF POWDERED DETERGENT
Masaharu Kame, Ikeda, Hideyuki Koda, Kobe, and Hiromi Igehara, Amagasaki, Japan, assignors to Nippon Oils and Fats Company Limited, Tokyo, Japan
No Drawing. Continuation of abandoned application Ser. No. 738,395, June 20, 1968. This application Aug. 23, 1971, Ser. No. 174,181
Int. Cl. C11d *11/00, 7/24*
U.S. Cl. 252—89 **2 Claims**

Powdered detergent is prepared by mixing an enzyme of hydrase with a non-ionic surface active agent or a natural or synthetic sizing agent and a detergent base homogeneously.

3,823,091
STABLE EMULSION OF FLUOROCARBON PARTICLES
Masayoshi Samejima, Minoo, Isao Sugimoto, Nara, Akira Suzuki, Taketsuki, Yoshiyuki Koida, Kawanishi, Goichi Hirata, Hirakata, and Goro Tsukamoto, Tokyo, Japan, assignors to The Green Cross Corporation and Tanage Seiyaku Co., Ltd.
No Drawing. Continuation-in-part of abandoned application Ser. No. 253,855, May 16, 1972. This application June 21, 1972, Ser. No. 264,732
Claims priority, application Japan, May 19, 1971, 46/33,911
Int. Cl. B01j *13/00*
U.S. Cl. 252—312 **9 Claims**

A dispersion containing 5–60 w./v. percent of fluorocarbon, 0.2–5 w./v. percent nonionic surfactant(s) and 2–20 w./v. percent polyalcohol(s) is emulsified under pressure. A stable emulsion of fluorocarbon particles having a particle diameter less than 0.2μ is produced. The emulsion is useful as an artificial blood.

3,823,092
PROCESS FOR PREPARING CRACKING CATALYSTS HAVING IMPROVED REGENERATION PROPERTIES
Elroy M. Gladrow, Baton Rouge, La., assignor to Esso Research and Engineering Company
No Drawing. Filed Jan. 24, 1972, Ser. No. 220,497
Int. Cl. B01j *11/40*
U.S. Cl. 252—455 Z **3 Claims**

The regeneration properties of cracking catalysts are improved by incorporating into a rare earth exchanged zeolite composite catalyst a small additional amount of cerium cations randomly distributed throughout the composite catalyst.

3,823,093
SILVER CAPACITOR METALLIZATIONS CONTAINING COPPER POLYNARY OXIDES
Rajnikant Babubhai Amin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed June 30, 1972, Ser. No. 268,055
Int. Cl. H01b *1/02*
U.S. Cl. 252—514 **15 Claims**

In silver and palladium/silver metallizations for conductors on dielectric substrates, improved metallizations fireable above the melting point of silver without circuit interruption, comprising certain crystalline inorganic polynary oxides of copper, e.g. $Cu_2Al_2O_4$, Cu_3TiO_5, etc. Multilayer capacitors of alternating layers of such metallizations and dielectric material, and capacitors having such metallizations as end terminations.

3,823,094
TWO PART LIQUID CAR WASH SYSTEM
Albert Jay Lancz, Piscataway, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.
No Drawing. Continuation-in-part of abandoned application Ser. No. 789,940, Jan. 8, 1969. This application Oct. 11, 1972, Ser. No. 296,509
Int. Cl. C11d *3/075, 3/30, 11/00*
U.S. Cl. 252—527 **2 Claims**

A liquid concentrate for automatic car wash machines designed to be stored in two parts, one of said parts containing $K_4P_2O_7$ and nitrilotriacetic acid trisodium salt, these constituting 30–60 weight percent of said part and the other part containing an ethoxylated nonionic surfactant, a hydrotrope, a viscosity controlling agent and monoethanolamine as a pH stabilizer. The two parts are mixed in a volume ratio from 1:2 to about 2:1 with a quantity of water to produce a stock solution.

3,823,095
HIGH TEMPERATURE BIS(EPOXYALKYL) CARBORANE ADHESIVES
Robert L. Barnes, Clifton, and Daniel Grafstein, Morristown, N.J., assignors to The Singer Company, New York, N.Y.
No Drawing. Application Feb. 2, 1971, Ser. No. 112,821, now Patent No. 3,780,021, which is a division of application Ser. No. 762,614, Sept. 25, 1968, now Patent No. 3,669,993. Divided and this application Jan. 4, 1973, Ser. No. 320,989
Int. Cl. C08g *30/10, 30/16*
U.S. Cl. 260—2 N **2 Claims**

The process of providing an adhesive junction between two workpieces having opposing smooth surfaces comprising the steps of mixing material selected from the group consisting of bis(epoxybutyl)carborane, bis(epoxypentyl)carborane, and bis(epoxyhexyl)carborane, with a curing agent selected from the group consisting of boron trifluoride ethylamine and 4,4'-diaminodiphenylsulfone, applying said mixture to the opposing surfaces, joining the surfaces and allowing the workpieces with the mixture therebetween to harden under heat and pressure.

3,823,096
MODIFIED FLEXIBLE POLYETHERURETHANE FOAMS
Hubert Jakob Fabris, Akron, and Edwin Morgan Maxey, Kent, Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Sept. 29, 1972, Ser. No. 293,361
Int. Cl. C08g *22/44*
U.S. Cl. 260—2.5 AP **6 Claims**

Polyether polyols capped with or containing strongly hydrogen-bonding urethane and/or urea end groups, prepared by reaction of a polyether polyol with an organic monoisocyanate or by sequential reaction first with a polyisocyanate and then with an organic primary monoamine, employed alone or in combination with more primary amine in a flexible polyol-modified polyurethane foam significantly improves the load factor of the polyurethane foam.

3,823,097
ANTIMONY TRIHALIDE CATALYSTS OF URETHANE FOAMS PREPARED FROM CARBOXY-CONTAINING ADDUCT POLYOLS
John K. Allen, Batavia, Ill., assignor to Standard Oil Company, Chicago, Ill.
No Drawing. Filed Aug. 21, 1972, Ser. No. 282,598
Int. Cl. C08g *22/40, 22/44*
U.S. Cl. 260—2.5 AB **6 Claims**

The catalysis of rigid urethane type foams prepared from polyarylpolysiocyanates and free carboxy-containing

adduct polyols is improved by the use of antimony trihalides as catalysts. These catalysts are also extremely effective in foams containing aromatic carboxylic acid derivatives as a third principal component. These foams are particularly useful in applications requiring good flame resistance and self-extinguishing characteristics.

3,823,098

FOAMING UNSATURATED POLYESTER RESINS

Wallace G. Joslyn, 1409 Wyllys, Midland, Mich. 48640

No Drawing. Original application July 12, 1971, Ser. No. 162,017. Divided and this application Apr. 9, 1973, Ser. No. 349,607

Int. Cl. C08g *53/08*

U.S. Cl. 260—2.5 N **16 Claims**

Unsaturated polyester resin are prepared with the aid of a profoamer which is a copolymer consisting essentially of (a) SiO_2 units, (b) $(CH_3)_3SiO_{1/2}$ units and (c)

$$R_2-N-R'-Si(R'')_nO_{\frac{3-n}{2}}$$

units wherein n has a value from 0 to 2, R'' is an alkyl radical containing from 1 to 18 carbon atoms, R' is an alkylene radical containing from 1 to 18 carbon atoms and each R is selected from the group consisting of the hydrogen atom, alkyl radicals containing from 1 to 18 carbon atoms and aminoalkyl radicals containing from 2 to 18 carbon atoms, the ratio of the (b) units to the sum of the (a) and (c) units in the copolymer being in the range of 0.4:1 to 1.2:1.

3,823,099

THERMOSETTING UNSATURATED POLYESTER FOAM PRODUCTS

Earl N. Doyle, 1737 Campbell Road, Houston, Tex. 77055

No Drawing. Filed Sept. 24, 1971, Ser. No. 183,622

Int. Cl. C08g *41/04, 22/44*

U.S. Cl. 260—2.5 BE **35 Claims**

Thermosetting unsaturated polyester foams are prepared by initiating a blowing reaction and a curing reaction in a thermosetting, unsaturated polyester resin mix. The blowing reaction comprises reacting *in situ* a small amount of a polyisocyanate compound and a hydrogen donor compound exothermically reactive therewith so as to form a gaseous blowing agent prior to gelation of the thermosetting resin. The blowing reaction also accelerates the curing reaction such that the polyester resin attains a gel state during expansion of the resin by the gaseous blowing agent and cures in an expaned condition.

3,823,100

POLYSACCHARIDE BASED FLOCCULANTS

Eric Rothwell, Bradford, and Graham Smalley, Huddersfield, England, assignors to Allied Colloids Limited, Bradford, Yorkshire, England

No Drawing. Filed Mar. 5, 1973, Ser. No. 337,987

Claims priority, application Great Britain, Mar. 13, 1972, 11,618/72

Int. Cl. C08h *7/00*

U.S. Cl. 260—6 **8 Claims**

A substituted polysaccharide is described which is water soluble and which is of use as, for example, a flocculant. The substituent groups are N(amino methyl)propionamide groups and may be monomeric or polymeric.

3,823,101

OPAQUE WHITE COATING COMPOSITION COMPRISING ESSENTIALLY CELLULOSE ESTER/CROSS-LINKING AGENT/CATALYST/SOLVENT AND ORGANIC LIQUID

Ehrlich M. Eiland, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

No Drawing. Original application Dec. 6, 1968, Ser. No. 781,977, now abandoned. Divided and this application Aug. 9, 1971, Ser. No. 170,369

Int. Cl. C08b *21/14*; C08g *37/32*; C08j *1/26*

U.S. Cl. 260—14 **3 Claims**

A coating composition and method of obtaining same by mixing an organic solvent which contains at least 85% by volume paraffinic hydrocarbons and has a boiling point of at least about 300° F. with a cross-linkable resin lacquer. An opaque white coating is obtained by applying the composition to a substrate and curing same thereon.

3,823,102

MIXTURES OF POLYURETHANE OR POLYUREAS, NITROCELLULOSE AND UREA DERIVATIVES FOR DRESSING NATURAL AND ARTIFICIAL LEATHER

Johannes Eimer, Leverkusen, Walter Schroer, Cologne, and Erwin Windemuth and Peter Coppee, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 31, 1972, Ser. No. 302,628

Claims priority, application Germany, Nov. 9, 1971, P 21 55 491.6

Int. Cl. C08b *21/14*

U.S. Cl. 260—16 **2 Claims**

Textile coatings and leather dressing composition are provided which compositions comprise mixtures of polyurethanes or polyureas with nitrocellulose and a urea derivative which contains at least one saturated or unsaturated aliphatic radical containing from 8 to 20 carbon atoms and at least one urea group.

3,823,103

AQUEOUS DISPERSIONS BASED ON HEAT-HARDENABLE PHENOLIC RESINS CONTAINING A GUM MIXTURE STABILIZING AGENT

James Harding, Green Brook, N.J., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 164,819, July 21, 1971. This application Mar. 29, 1972, Ser. No. 239,316

Int. Cl. C08g *37/18*

U.S. Cl. 260—17.2 **13 Claims**

The disclosure of this application is directed to aqueous dispersions of heat-hardenable phenolic resins, which are characterized by excellent stability, by a low Pollution Index, are capable of being infinitely diluted with water and are especially desirable for use in applications wherein mineral fibers are sprayed with the aqueous dispersions and subsequently formed into mineral fiber batts.

3,823,104

SOLID FOAMS AND THEIR PREPARATION

Clemens Bondy, Harlow, and Ian Christopher Tallack, Southampton, England, assignors to Doverstrand Ltd., Temple Fields, Harlow, Essex, England

No Drawing. Continuation-in-part of abandoned application Ser. No. 34,864, May 5, 1970. This application Aug. 30, 1972, Ser. No. 284,796

Claims priority, application Great Britain, May 5, 1969, 22,865/69

Int. Cl. C08j *1/16*

U.S. Cl. 260—2.56 **11 Claims**

In the preparation latex rubber foams utilizing non-ionic surfactants, foam stability is enhanced by the use of a fatty

stabilizer blend which contains both normally liquid and normally solid fatty components, the blend itself being normally liquid. The fatty components of the blend are selected from the group consisting of saturated and unsaturated fatty alcohols, saturated and unsaturated fatty acid amides and mixtures thereof.

3,823,105

PROCESS FOR THE POLYMERIZATION OF DODECALACTAM IN THE PRESENCE OF BORIC ACID

Genevieve Morival and Remy Hebert, Serquigny, France, assignors to Societe Anonyme dite: Aquitaine Total Organico Tour Aquitaine, Courbevoie, France

No Drawing. Filed Oct. 21, 1971, Ser. No. 191,475

Claims priority, application France, Oct. 26, 1970, 7038556

Int. Cl. C08g *20/10*

U.S. Cl. 260—18 N 18 Claims

The present invention concerns a process for the polymerization of dodecalactam in the presence of a boric acid, providing a rapid procedure for obtaining a very high yield of polyamides with high molecular weight and with excellent resistance to degradation when kept in a molten state.

Polymerzation takes place preferably at a temperature between 290 and 320° C., in the presence of 0.05 to 2% boric acid.

The polymers obtained are easy to use in the production of moulded articles, sheets, tubes and pipes, by injection, extrusion or blowing.

3,823,106

METHOD FOR PREPARING WATER-SOLUBLE OR DISPERSIBLE COATING COMPOSITION AND METHOD FOR CONTROLLING COATING BATH CONTAINING THE SAME

Tadasu Kimura and Takashi Sunamori, Ohtake, and Sadao Kimura, Hiroshima, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,711

Claims priority, application Japan, Dec. 25, 1970, 45/129,321

Int. Cl. C08f *15/40*

U.S. Cl. 260—29.4 UA 20 Claims

A method which comprises treating with an anion exchanger a paint binder composed mainly of a polycarboxylic acid resin having an average pKa(r) value of 8.0 or more and $0.8 \leqq n \leqq 2.5$, or a salt thereof to make 5% or less the content of impurities in the binder, said impurities being composed mainly of (i) polycarboxylic acid resins having a pKa(r) value at least 5.0 smaller than the pKa(r) value of the main polycarboxylic acid resin constituting the binder, or salts thereof and (ii) low molecular weight acids having a pKa(e) value at least 0.5 smaller than the pKa(r) value of the main polycarboxylic acid resin, or salts thereof, adding to the thus treated paint binder 60% or less of water or neutralizing agent-containing water, treating the resulting mixture with a cation exchanger to obtain a coating composition, diluting the coating composition with deionized water to a solid content of 20% by weight or less to form an aqueous coating bath and effecting electrodeposition coating in said bath while replenishing the bath with said coating composition corresponding to the nonvolatile matter taken out of the bath by coating, without accumulating the neutralizing agent in the bath.

3,823,107

EPOXY RESIN CURING AGENT COMPOSITIONS, THEIR PREPARATION AND USE

Malcolm Cotton, Wokingham, England, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 9, 1972, Ser. No. 233,303

Claims priority, application Great Britain, Mar. 11, 1971, 6,569/71; Sept. 8, 1971, 41,916/71

Int. Cl. C08f *27/08*

U.S. Cl. 260—23.7 N 8 Claims

Epoxy curing agent compositions which are especially suitable to cure solid, solution or liquid solventless polyepoxide systems comprises (1) a polyamine and (2) a reaction product of (a) the same or different polyamine, (b) a polymer having per molecule more than one reactive group capable of reacting with amine and/or epoxide groups, and optionally, (c) a polyepoxide.

3,823,108

AQUEOUS ETHYLENE TERPOLYMER HYDROSOL DISPERSIONS

Thomas Charles Bissot, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 30, 1972, Ser. No. 301,851

Int. Cl. C09j *3/26*

U.S. Cl. 260—27 R 17 Claims

Aqueous ethylene terpolymer hydrosol dispersions are described which are useful as heat-seal coatings, laminating adhesives and as primers. These dispersions comprise (1) an ethylene terpolymer consisting essentially of about 55 to 80 weight percent ethylene, about 10 to 42 weight percent ester monomer, and about 3 to 10 weight percent alpha, beta-ethylenically unsaturated carboxylic acid in which at least about 50 percent of the acid groups are neutralized, (2) about 5 to 50 weight percent, based on the ethylene terpolymer, of a high molecular weight acid selected from the group consisting of rosins and fatty acids and having an acid number of at least about 50, (3) an alkali metal hydroxide in an amount sufficient to neutralize about 10 to 100 percent of the acid groups in both the ethylene terpolymer and the high molecular weight acid, and (4) an amine base having a dissociation constant of at least about 1×10^{-8} in an amount sufficient to neutralize 0 to about 300 percent of the acid groups in both the ethylene terpolymer and the high molecular weight acid, the total amount of alkali metal hydroxide and amine base being sufficient to neutralize at least about 50 percent of the acid groups in both the ethylene terpolymer and the high molecular weight acid, said dispersion having a solids content of about 2 to 35 percent by weight.

3,823,109

POLYMER COMPOSITIONS

Terence C. Middlebrook, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Nov. 3, 1972, Ser. No. 303,421

Int. Cl. C08c *9/14, 11/72*

U.S. Cl. 260—23.7 R 4 Claims

Silico aluminate fillers are effective to reduce blooming of block polymer compositions containing fatty acids.

3,823,110

POLYMERIC FLEXOGRAPHIC INK

Donald G. Epple, Oak Lawn, Ill., assignor to Nalco Chemical Company, Chicago, Ill.

No Drawing. Original application Oct. 18, 1971, Ser. No. 190,028, now Patent No. 3,776,758. Divided and this application July 30, 1973, Ser. No. 383,681

Int. Cl. C09d *11/10*; C08f *15/40*
U.S. Cl. 260—29.7 T 7 Claims

A rapid drying flexographic ink consisting of:

(a) about 40% by weight of an inorganic pigment;
(b) 40–45% by weight of a polymer solution/emulsion consisting of a styrene/butadiene/acrolein/acrylic acid (SBAA) tetrapolymer (30–40% by weight solids) containing as a predispersant additive 5–15% by weight of a polyacrylate; and
(c) the balance inert diluent selected from the group consisting of water and lower alkanols.

3,823,111

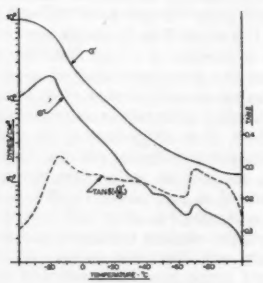
POLYURETHANES

Frederic Christian Loew, Ridgewood, and Edward Stone, Morris Plains, N.J., assignors to Inmont Corporation, New York, N.Y.

Continuation of abandoned application Ser. No. 819,337, Apr. 25, 1969. This application Jan. 13, 1972, Ser. No. 217,671

The portion of the term of the patent subsequent to Jan. 9, 1990, has been disclaimed

Int. Cl. C08g *22/06*, *51/44*
U.S. Cl. 260—32.6 NR 8 Claims



Microporous leather substitutes are made from high molecular weight linear thermoplastic elastomeric polyurethanes of I.V. 0.9–1.4 which have been prepared by reaction in solution in dimethylformamide ("DMF") solvent which contains substantially no free tertiary amine. A monofunctional strong mineral acid is added to neutralize free tertiary amine groups. A hydroxy-terminated prepolymer and a diol chain extender are reacted with a small excess of diisocyanate, until the —NCO content becomes constant, then a diol chain extender in amount equivalent to the remaining —NCO and reaction is continued, and then terminated with methanol after the high I.V. is attained. The reactants may include very small amounts of trimethylolpropane and methanol (in equimolar proportions) to give controlled chain branching.

3,823,112

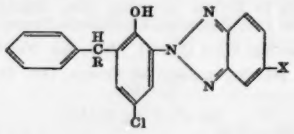
LIGHT STABILIZED POLYMER COMPOSITIONS AND BENZOTRIAZOLE STABILIZERS

Fernando J. Ponder, Broadview Heights, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

No Drawing. Continuation of application Ser. No. 216,792, Jan 10, 1972, which is a continuation-in-part of application Ser. No. 846,259, July 30, 1969, both now abandoned. This application Sept. 1, 1972, Ser. No. 285,795

Int. Cl. C08f *45/58*
U.S. Cl. 260—45.8 N 5 Claims

Benzotriazoles useful as light stabilizers of the formula:



wherein R is H or methyl and X is Cl or H.

3,823,113

STABILIZED POLYVINYL ACETAL INTERLAYERS

Abraham J. Reisman, Springfield, Mass., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Oct. 27, 1972, Ser. No. 301,462

Int. Cl. C08f *45/58*, *45/60*
U.S. Cl. 260—45.8 N 6 Claims

Disclosed herein are polyvinyl acetal resins, suitable for use as interlayers for pellucid laminates which contain a synergistic mixture of 2,6-di-n-octadecyl-p-cresol stabilizers and an alkylated hydroxy phenyl benzotriazole.

3,823,114

ANTIOXIDANT FOR POLYMERIC HYDROCARBONS

Robert Vincent Albarino, Berkeley Heights, and Harold Schonhorn, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill and Berkeley Heights, N.J.

Filed Jan. 4, 1973, Ser. No. 320,974

Int. Cl. C08f *45/60*
U.S. Cl. 260—45.9 R 4 Claims

The migration of antioxidants from polymeric hydrocarbons is retarded by bonding the antioxidant with silane coupling agents.

3,823,115

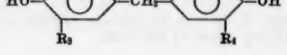
POLYOLEFINS STABILIZED WITH 4,4'-METHYLENEBIS(2,6 - DISUBSTITUTED PHENOL) AND PROCESS THEREOF

Gordon D. Brindell, Crystal Lake, and Rudolf F. Macander, Cary, Ill., assignors to The Quaker Oats Company, Chicago, Ill.

No Drawing. Filed May 15, 1972, Ser. No. 253,148

Int. Cl. C08f *45/58*
U.S. Cl. 260—45.95 R 16 Claims

Polyolefin stabilized with a compound of the following formula is disclosed:



wherein R_1, R_2, R_3, and R_4 are independently aralkyl or alkyl with the proviso that at least one aralkyl group contains no branching on the carbon alpha to the phenylene group or at least one alkyl group contains no branching on the carbon alpha to the phenylene group but has at least one branch on the carbon beta to the phenylene group.

3,823,116

PROCESS FOR PRODUCING COPOLYMERS OF VINYL CHLORIDE WITH ACRYLIC ACID ESTERS

Lorenzo Ratti, Chiavenna, and Francesco Visani, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Mar. 10, 1972, Ser. No. 233,720
Claims priority, application Italy, Mar. 12, 1971, 21,678/71
Int. Cl. C08g *15/26*
U.S. Cl. 260—63 HA **7 Claims**

There is disclosed a process for producing copolymers of vinyl chloride with acrylic acid esters which comprises polymerizing a mixture of vinyl chloride, carbon monoxide and a compound containing alcoholic functions in contact with an initiator or catalyst of the radicalic type, such as a peroxide, azo-compound, redox system, or the like.

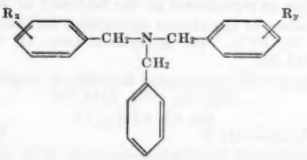
3,823,117

TRIBENZYLAMINE MOIETY CONTAINING POLYESTERS

Volker Freudenberger, Diedenbergen, and Franz Jakob, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Oct. 6, 1972, Ser. No. 295,665
Claims priority, application Germany, Oct. 8, 1971, P 21 50 293.2
Int. Cl. C08g *17/08, 17/14*
U.S. Cl. 260—75 N **6 Claims**

Modified, synthetic linear fiber and film-forming polyesters with improved colorability for acid dyes are prepared by adding during the manufacture of fiber and film-forming linear polyesters from the usual raw materials tertiary amino compounds of the formula



wherein

R=the free or esterified carboxyl group,

$x+y=1$ or 2 and x as well as y can be 0 or 1 or—in the case of $x+y=2$—likewise the value 2,

and at least 3 carbon atoms are situated between each R group and the CH_2-group, which connects the ring carrying R with the tertiary N, as well as between the R groups, if x or $y=2$.

3,823,118

PROCESS FOR PREPARING THERMOSETTABLE URETHANE RESIN

Yoshiki Matsunaga, Yokohama, Yoichi Hoshino, Tokyo, and Yoshimichi Kobayashi, Yokohama, Japan, assignors to Mitsubishi Chemical Industries, Ltd., Tokyo, Japan

No Drawing. Filed Dec. 20, 1971, Ser. No. 210,239
Claims priority, application Japan, Dec. 29, 1970, 46/120,955, 46/120,957; Apr. 20, 1971, 46/25,559
Int. Cl. C08g *22/16*
U.S. Cl. 260—77.5 AQ **19 Claims**

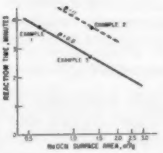
A novel thermosettable urethane resin is prepared by reacting a product (I) which is obtained by the reaction of one equivalent of a polyurethane prepolymer (A) having terminal isocyanate groups and at least two equivalents of a tertiary amine (B) having an average of at least three hydroxyl groups, with a product (II) which is obtained by the equimolar addition reaction of an organic diisocyanate (C) and a monofunctional blocking agent (D), in a proportion such that 20–80% of hydroxyl groups of the product (I) is reacted with the isocyanate groups of the product (II).

3,823,119

POLYISOCYANATE-POLYISOCYANURATE PROCESS

Charles R. Vestal, Denver, and Carle C. Zimmerman, Jr., Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed June 8, 1972, Ser. No. 260,844
Int. Cl. C08g *22/24, 22/28*
U.S. Cl. 260—77.5 NC **8 Claims**



Desired distribution of polyisocyanate-polyisocyanurates and rate of reaction is improved by controlling the surface area (i.e., particle size) of the metal cyanate reactant, a mathematical relationship exists between such distribution and the unit surface area of the metal cyanate for a given reaction time.

3,823,120

PREPARATION AND USES OF N-(ω-AMINOALKYL)-2-AMINOETHANE SULFONIC ACIDS AS CATIONIC DYEABLE ADDITIVES TO POLYAMIDES

Morris Benjamin Berenbaum and Allen Walter Sogn, Williamsville, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,628
Int. Cl. C08g *20/20*
U.S. Cl. 260—78 R **4 Claims**

Preparation and uses of new compounds of N-(ω-aminoalkyl) - 2 - aminoethane sulfonic acids, especially N-(6-aminohexyl)-2-aminoethane sulfonic acid is disclosed. The compounds can be used in nylon yarn to make it dyeable with cationic dyes.

3,823,121

POLYMERIZATION PROCESS

Dale C. Perry, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Nov. 9, 1972, Ser. No. 305,019
Int. Cl. C08d *1/14, 3/04*
U.S. Cl. 260—82.1 **8 Claims**

The method of polymerization of isoprene-butadiene mixtures to form copolymers having improved processing characteristics and to catalyst systems useful for this purpose.

3,823,122

SYNTHETIC RUBBERS

Theodore R. Schuh, North Riverside and Frank A. Mauceri, La Grange, Ill., assignors to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed Oct. 1, 1971, Ser. No. 185,908
Int. Cl. C08d *5/02, 5/04*
U.S. Cl. 260—85.1 **6 Claims**

The oil or solvent resistance of SBR synthetic rubbers is substantially improved by incorporating in the rubber

mix a substituted acrylic acid or acid salt. The amount of additive incorporated in the elastomer ordinarily varies from about 2.5 to 5.0 phr. of the elastomer. Zinc methacrylate and α-methyl cinnamic acid are among the preferred additives.

3,823,123

ANTISTATICALLY FINISHED ACRYLONITRILE POLYMERS

Ferdinand Bodesheim, Eduard Radlmann, Armin Köhler, Ernst Gutschik, and Günther Nischk, Dormagen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Sept. 17, 1971, Ser. No. 181,603

Claims priority, application Germany, Sept. 18, 1970, P 20 46 091.7

Int. Cl. C08f *3/76, 15/02, 15/22*

U.S. Cl. 260—85.5 R **2 Claims**

The invention relates to an acrylonitrile polymer composition which comprises a polymer of acrylonitrile, and from 1 to 20% by weight, based on the total composition, of an antistatic compound of the formula

$$X—[OCH_2—CHR]_m—O—(CH_2)_n—SO_3M.$$

In addition to their outstanding antistatic properties, the acrylonitrile polymers treated according to the invention are distinguished by a high affinity for basic dyes and considerably improved water absorption.

3,823,124

POLYMERS OF PHOSPHORUS-CONTAINING MONOMERS

Wen-Hsuan Chang and Rostyslaw Dowbenko, Gibsonia, Pa., and Carl C. Anderson, Hartland, Wis., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Application Apr. 27, 1972, Ser. No. 248,294, now Patent No. 3,763,108, which is a continuation-in-part of abandoned application Ser. No. 29,309, Apr. 16, 1970. Divided and this application June 20, 1973, Ser. No. 371,919

Int. Cl. C08f *3/90, 15/02*

U.S. Cl. 260—89.7 R **6 Claims**

Phosphorous-containing monomers are prepared by reacting unsaturated amides with aldehydes and trialkyl phosphites. The resulting monomers can be polymerized to form a fire-retardant resin which may be used as a pressure-sensitive adhesive.

3,823,125

N-AMINOACYL-SUBSTITUTED INSULINS

Norman H. Grant, Wynnewood, Harvey E. Alburn, West Chester, and Richard L. Fenichel, Wyncote, Pa., assignors to American Home Products Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 866,271, Oct. 14, 1969, which is a continuation-in-part of application Ser. No. 702,245, Feb. 1, 1968, both now abandoned. This application Oct. 12, 1971, Ser. No. 188,504

Int. Cl. C07c *103/52*

U.S. Cl. 260—112.7 **4 Claims**

Novel aminoacyl-substituted insulins, especially 1-aminocyclopentanecarbonyl-, 1 - aminocyclohexanecarbonyl-, and 1-aminocyclopent-3-ene-carbonyl-insulins (I) are prepared by treating insulin with an aminoacylating agent, especially the corresponding N-carboxyanhydrides (II) of 1-aminocyclopentanecarboxylic acid, 1-aminocyclohexanecarboxylic acid and 1-aminocyclopent-3-ene-carboxylic acid. The new compounds (I) have hypoglycemic activity and are useful to treat diabetes.

3,823,126

PROCESS OF SEPARATING HUMAN CANCER ANTIGEN PROTEINS BY GEL FILTRATION

Knut Bertil Bjorklund, Appelviksvagen 26, S–161–36 Bromma, Sweden

Filed May 23, 1972, Ser. No. 255,975

Int. Cl. C07g *7/00*

U.S. Cl. 260—112 R **4 Claims**

The invention refers to a process for separating delicate biological substances. Starting from isoelectric precipitates of protein mixtures the process is based on repeated gradient elution and reprecipitation of the individual components of the mixture. The process is carried out in a gel column with properties such as to permit separation of precipitate, solute and ionic gradient.

3,823,127

NUTRITIONAL IRON-PROTEIN COMPLEXES FROM WASTE EFFLUENTS

Susan B. Jones, Philadelphia, Edwin B. Kalan, Abington, Thomas C. Jones, Philadelphia, and Frederic Hazel, Havertown, Pa., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed June 7, 1972, Ser. No. 260,572

Int. Cl. A23c *21/00;* **A23j** *1/00*

U.S. Cl. 260—112 R **3 Claims**

Proteins are precipitated and recovered from industrial waste effluents such as whey by addition of Ferripolyphosphate to the effluents. The recovered product, a Ferripolyphosphate-protein complex in powder form containing from 8 to 15% iron and from 15 to 50% protein is highly nutritional and highly assimilable and has great potential as an iron-protein enriching additive in food and other products.

3,823,128

PREPARATION OF EDIBLE PROTEIN FROM LEAFY GREEN CROPS SUCH AS ALFALFA

Emanuel M. Bickoff, Oakland, and George O. Kohler, El Cerrito, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

Continuation of abandoned application Ser. No. 147,947, May 28, 1971. This application May 14, 1973, Ser. No. 360,251

Claims priority, application Republic of South Africa, May 16, 1972, 72/3,347

Int. Cl. A23j *1/14*

U.S. Cl. 260—112 R **13 Claims**

Juice obtained from alfalfa or other leafy green crops is treated to isolate a protein fraction useful for supplementing low-protein foods. A feature of the invention is the application of treatments to first remove a highly-pigmented chloroplastic protein fraction, and then to precipitate a protein fraction free from chlorophyll and other pigments.

3,823,129

GLUTARALDEHYDE INSOLUBILIZED CONCANAVALIN A IN CRYSTALLINE FORM

Aaron Joseph Kalb and Joseph Yariv, Rehovot, Israel, assignors to Yeda Research and Development Co. Ltd., Rehovot, Israel

No Drawing. Filed Aug. 17, 1971, Ser. No. 172,559

Claims priority, application Israel, Aug. 26, 1970, 35,169/70

Int. Cl. A23j *1/14*

U.S. Cl. 260—123.5 **1 Claim**

The present invention relates to insolubilized crystalline concanavalin A, to a process for preparing same by reacting crystalline concanavalin A with a cross-linking agent,

and to a process for the selective removal of transition metals from solutions containing also other cations, and to a process for the selective removal and recovery of saccharides from solutions of same.

3,823,130

LIGHT SENSITIVE ESTERS OF NAPHTHOQUINONE-1,2-DIAZIDE-(2)-5-SULFONICACIDS WITH CYCLOHEXYLMETHANOL OR SECONDARY OR TERTIARY ALKANOLS OF UP TO SIX CARBON ATOMS

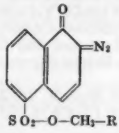
Albert S. Deutsch and Joseph M. Poppo, Yonkers, N.Y., assignors to Polychrome Corporation, Yonkers, N.Y.

No Drawing. Filed May 28, 1971, Ser. No. 148,238

Int. Cl. C07c *113/00;* **G03c** *1/54*

U.S. Cl. 260—141 **4 Claims**

Light-sensitive compounds comprising alkyl esters of naphthoquinone diazides of the formula



wherein R is cyclohexyl or an alkyl of 2 to 4 carbon atoms substituted at the alpha-carbon by one or two methyl groups, which resist hydrolysis during prolonged storage and are useful for making sensitized lithographic printing plates.

3,823,131

DIALKYLAMINO DISAZO SULFONIC ACID DYESTUFFS

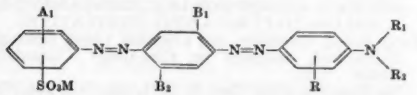
Hans Alfred Stingl, Toms River, N.J., assignor to Toms River Chemical Corporation, Toms River, N.J.

No Drawing. Filed June 23, 1971, Ser. No. 156,057

Int. Cl. C09b *31/04, 31/08;* **D06p** *1/06*

U.S. Cl. 260—186 **7 Claims**

Dyestuffs of the formula



in which A_1 is hydrogen, alkyl, alkoxy, halo or trifluoromethyl, B_1 and B_2 are each hydrogen, lower alkoxy, lower alkyl, chloro or bromo, M is hydrogen, alkali metal or NH_4^+, R is hydrogen, alkyl, alkoxy, trifluoromethyl, chloro, bromo or fluoro, and R_1 and R_2 are each alkyl, hydroxyalkyl, cyanoalkyl, lower aralkyl or substituted lower aralkyl. The dyes have a good affinity for natural and synthetic polyamide fibers and show good light fastness, solubility, wash and perspiration fastness as well as good barré coverage.

3,823,132

FLAME-RETARDANT POLYURETHANE FOAMS

Felix H. Otey, Richard P. Westhoff, and Charles L. Mehltretter, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed July 9, 1971, Ser. No. 161,312

Int. Cl. C07c *47/18*

U.S. Cl. 260—210 R **3 Claims**

Highly flame-resistant rigid foams are obtained by the use of novel halogen-containing polyols in the polyurethane synthesis.

3,823,133

METHOD FOR PREPARING ADSORPTIVE CELLULOSE ETHERS

Louis S. Hurst and Norman E. Lloyd, Clinton, Iowa, assignors to Standard Brands Incorporated, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 254,513, May 18, 1972. This application May 17, 1973, Ser. No. 361,361

Int. Cl. C08b *11/00*

U.S. Cl. 260—231 A **11 Claims**

Adsorptive cationic cellulose is prepared by introducing cationic substituents onto cellulose in an alkaline aqueous solution of a salt of a strong acid and a strong base. The derivatized cellulose has a high adsorptive capacity for certain proteinaceous materials, e.g., enzymes.

3,823,134

DICHLORO-α,α,α-TRIFLUOROTOLUAMIDES

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 864,869, Oct. 8, 1969, which is a continuation-in-part of application Ser. No. 835,252, June 20, 1969, both now abandoned. This application Dec. 18, 1972, Ser. No. 316,103

Int. Cl. C07c *103/20*

U.S. Cl. 260—239 BA **7 Claims**

Dichloro-α,α,α-trifluorotoluamides are prepared by reacting the corresponding acid chloride with the desired amine in an appropriate solvent. The resulting compounds are particularly useful as anticoccidial agents and central nervous system depressants.

3,823,135

PYRIMIDONE HERBICIDES

Kurt H. G. Pilgram and Richard D. Skiles, Modesto, Calif., assignors to Shell Oil Company

No Drawing. Filed Dec. 26, 1972, Ser. No. 318,317

Int. Cl. C07d *51/38*

U.S. Cl. 260—251 R **4 Claims**

2,5-dihalo-3-(optionally substituted-phenyl) - 6-alkyl-4 (3H)-pyrimidones, and their use as herbicides.

3,823,136

IMINOMETHYLINDOLINES

Yao Hua Wu and Walter G. Lobeck, Evansville, Ind., assignors to Mead Johnson & Company, Evansville, Ind.

No Drawing. Original application Oct. 1, 1969, Ser. No. 862,915, now Patent No. 3,679,692. Divided and this application May 8, 1972, Ser. No. 253,672

Int. Cl. C07d *27/38*

U.S. Cl. 260—240 G **10 Claims**

This invention relates to a series of 1 - iminomethylindolines which are analeptic agents capable of counteracting central nervous system depressant effects of pentobarbital and chloral hydrate. They also exhibit analgesic effects. This invention also relates to a process for the preparation of 1-iminomethylindolines which comprises reaction of an indoline with carboxamides selected from the group consisitng of amides, lactams, symmetrical or unsymmetrical ureas and hydrazides. Typical examples of 1-iminomethylindoline derivatives are 5-acetyl-1-[2-(1-pyrrolinyl)]indoline and 1-[2-(5,5 - dimethyl - 1 - pyrrolinyl)]indoline.

3,823,137

NOVEL NITROFURAN COMPOUNDS AND PHARMACEUTICAL COMPOSITIONS

Herbert Berger, Mannheim-Kafertal, Rudi Gall, Grobsachsen, Max Thiel and Wolfgang Vomel, Mannheim, and Winfriede Sauer, Mannheim-Wallstadt, Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

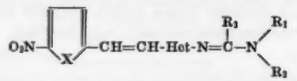
No Drawing. Continuation-in-part of application Ser. No. 151,991, June 10, 1971. This application Sept. 20, 1972, Ser. No. 290,681

Claims priority, application Germany, June 20, 1970, P 20 30 581.1; May 10, 1972, P 22 22 834.8

Int. Cl. C09b *23/00*

U.S. Cl. 260—240.1 11 Claims

Certain novel nitrofuran compounds of the formula



wherein Het is a naphthyridine or *s*-triazolo[4,3-b]pyridazine system and the R's are variously defined, which are outstandingly effective bacteriostats and bactericides.

3,823,138

LACTONE INTERMEDIATES

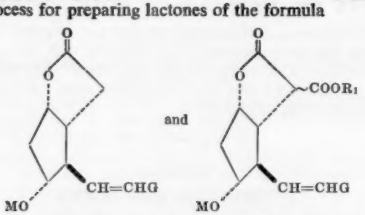
Verlan H. Van Rheenen, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed July 21, 1972, Ser. No. 273,785

Int. Cl. C07d *7/04*

U.S. Cl. 260—240 R 6 Claims

Process for preparing lactones of the formula



wherein G is R_9, 1-hydroxyhexyl, or 1-hydroxy-cis-3-hexenyl, wherein R_9 is hydrogen, alkyl of one to 12 carbon atoms, inclusive, cycloalkyl of 3 to 10 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, or phenyl substituted with one, 2, or 3 alkyl of one to 4 carbon atoms, inclusive; wherein M is hydrogen or a blocking group; wherein R_1 is hydrogen, alkyl of one to 12 carbon atoms, inclusive, cycloalkyl of 3 to 10 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, or phenyl substituted with one, 2, or 3 chloro or alkyl of one to 4 carbon atoms, inclusive, or ethyl substituted in the β-position with 3 chloro, 2 or 3 bromo, or 1, 2, or 3 iodo; and wherein $\sim$ indicates attachment in alpha or beta configuration. The lactones are useful intermediates in preparing prostaglandins having pharmacological utility.

3,823,139

CEPHALOSPORINS HAVING A γ-CARBONYL GROUP AT POSITION-3

William George Elphinstone Underwood, Stoke Poges, England, assignor to Glaxo Laboratories Limited, Greenford, England

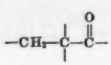
No Drawing. Filed Mar. 23, 1971, Ser. No. 127,403

Claims priority, application Great Britain, Mar. 26, 1970, 14,981/70; Apr. 23, 1970, 19,631/70

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C 14 Claims

The invention is concerned with Δ^3-4-carboxy cephalosporin antibiotics possessing a γ-carbonyl group, viz the skeletal group



at the 3-position. The invention also describes processes for the preparation of such compounds.

3,823,140

Δ^3-4-CARBOXY-3-OXOBUTYL CEPHALOSPORINS

John Colin Clark, Gerrards Cross, and William George Elphinstone Underwood, Stoke Poges, England, assignors to Glaxo Laboratories Limited, Greenford, England

No Drawing. Filed Mar. 23, 1971, Ser. No. 127,404

Claims priority, application Great Britain, July 3, 1970, 32,476/70; Mar. 5, 1971, 14,981/71, 19,631/71

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C 5 Claims

The invention is concerned with Δ^3-4-carboxy cephalosporin antibiotics possessing a 3-oxobutyl group at the 3-position. The invention also describes processes for the preparation of such compounds.

3,823,141

7-(o-AMINOMETHYL-p-HYDROXY-PHENYLACETAMIDO)-3-(3-HYDROXY-PYRIDAZIN-6-YLTHIOMETHYL)-3-CEPHEM-4-CARBOXYLIC ACID

Takayuki Naito, Tokyo, and Jun Okumura, Yokohama, Japan, assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Sept. 6, 1972, Ser. No. 286,792

Int. Cl. C07d *99/24*

U.S. Cl. 260—243 C 7 Claims

7-(o-Aminomethyl-p-hydroxyphenylacetamido)-3-(3-hydroxy-pyridazin-6-ylthiomethyl)-3-cephem-4-carboxylic acid and its nontoxic, pharmaceutically acceptable salts and especially its dimethanesulfonate derivative are valuable as antibacteria agents, as nutritional supplements in animal feeds and as therapeutic agents in poultry and animals, including man, and are especially useful in the treatment of infectious diseases caused by many Gram-positive and Gram-negative bacteria. 7-(o-Aminomethylphenyl-p-hydroxyacetamido)-3-(3-hydroxypyridazin-6-ylthiomethyl)-3-cephem-4-carboxylic acid is prepared, for example, by treatment at 0° C. with trifluoroacetic acid of the corresponding compound in which the free amino group is protected with a *tert.*-butoxycarbonyl group.

3,823,142

1-PHENYL-4-PHOSPHORANYLIDENEAMINO-5-HALO-6(1H)-PYRIDAZONE DERIVATIVES

Joerg Bader, Arlesheim, and Christian Vogel, Binningen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

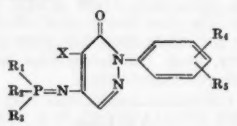
No Drawing. Filed Dec. 8, 1971, Ser. No. 206,172

Claims priority, application Switzerland, Dec. 15, 1970, 18,554/70

Int. Cl. C07d *51/04*

U.S. Cl. 260—250 A 9 Claims

The invention is concerned with new pyridazone derivatives of formula



wherein R_1 and R_2 independently represent alkoxy, alkenyloxy, alkoxyalkoxy, alkylthio or both together with the phosphorus atom form a five- or six-membered ring containing at least one other hetero atom, R_3 is alkoxy, alkenyloxy, alkoxyalkoxy, alkylthio or dialkylamino, R_4 and R_5 are hydrogen, halogen, lower alkyl, alkoxy or halogenalkyl, X being chlorine or bromine. Preferably the three radicals R_1, R_2, R_3 are identical and represent lower alkoxy and R_4 and R_5 are hydrogen. There is also provided an agent for the control of weeds comprising

the said pyridazone derivatives as active component. The new compounds are especially useful as selective herbicides in cultivated crops.

3,823,143
PRODUCTION OF 2,4-HEXAHYDRO-PYRIMIDINODIONES

Franz Merger, Ludwigshafen (Rhine) and Harro Petersen, Frankenthal, Pfalz, Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation of abandoned application Ser. No. 730,947, May 21, 1968. This application Feb. 6, 1970, Ser. No. 7,410
Claims priority, application Germany, May 27, 1967, P 16 70 232.2
Int. Cl. C07d *51/18*
U.S. Cl. 260—260 **9 Claims**

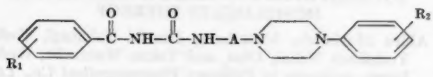
The production of 2,4-hexahydropyrimidinodiones by reaction of 2-hexahydropyrimidone-4-ethers or 2-hexahydropyrimidon-4-ols with oxidizing agents. The products of the process are valuable starting materials for the production of herbicides, bleaching agents and detergents.

3,823,144
N-(BENZOYL)-N'-[(PIPERAZIN-1-YL)ALKYL]UREAS

Karl Schmitt, Neuenhain, Taunus, and Irmgard Hoffmann, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed June 21, 1972, Ser. No. 264,747
Claims priority, application Germany, June 23, 1971, P 21 31 034.9
Int. Cl. C07d *51/70*
U.S. Cl. 260—268 PH **8 Claims**

Benzoyl ureas of the formula



and salts thereof with physiologically acceptable acids, useful as psychopharmacological agents, wherein R_1 is one or more of hydrogen, halogen, alkyl having 1 to 6 carbon atoms, alkyl having 3 to 6 carbon atoms, cycloalkyl of 3 to 7 carbon atoms, cycloalkenyl of 4 to 7 carbon atoms, aralkyl having 1 to 4 alkylene carbon atoms, phenyl, hydroxy, acyloxy, alkoxy having 1 to 6 carbon atoms, alkenyloxy having 3 to 6 carbon atoms, aralkoxy having 1 to 4 alkylene carbon atoms, aryloxy, trifluoro, or nitro, in any position, or represents two vicinal substituents which are members of a condensed 5- to 7-membered carbocyclic ring; R_2 is hydrogen, halogen, alkyl having 1 to 4 carbon atoms, or alkoxy having 1 to 4 carbon atoms; and A is alkylene having 2 to 6 carbon atoms.

3,823,145
REMOVAL OF IMPURITIES FROM POLYOLS

Joseph F. Louvar, Lincoln Park, and Newlin S. Nichols, Dearborn, Mich., assignors to BASF-Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation-in-part of abandoned application Ser. No. 747,793, July 26, 1968. This application Mar. 19, 1971, Ser. No. 126,343
Int. Cl. C07c *41/02, 41/12;* **C07d** *51/64*
U.S. Cl. 260—268 PL **4 Claims**

The process for purifying polyoxyalkylene ether polyols containing water-soluble residual catalysts which comprises (1) providing a mixture of water, polyol and a solvent which together with the polyol forms a water-immiscible solution, (2) subjecting the mixture to centrifugal separation whereby the polyol-solvent solution is separated from a water layer and (3) recovering the purified polyol from the polyol-solvent solution by stripping off the solvent.

3,823,146
PROCESS FOR QUININE, QUINIDINE AND ANALOGS THEREOF

Guenter Grethe, North Caldwell, and Milan Radoje Uskokovic, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 117,131, Feb. 19, 1971, which is a continuation-in-part of application Ser. No. 20,034, Mar. 16, 1970, both now abandoned. This application July 27, 1971, Ser. No. 166,583
Int. Cl. C07d *43/24*
U.S. Cl. 260—284 **5 Claims**

Quinine, quinidine and analogs thereof, are prepared by reacting a 4-quinolyllithium compound with a 4,5-erythro-5-ethyl-(or vinyl)-quinuclidine - 2ξ - carboxaldehyde or the corresponding quinuclidine-2-carboxylic acid alkyl ester. Also described, inter alia, is the preparation of a 4,5-erythro-5-ethyl-(or vinyl)-quinuclidine-2ξ-carboxaldehyde, and a 4,5-erythro-5-ethyl-(or vinyl)-quinuclidine-2ξ-carboxylic acid and esters thereof. The end products are useful as antimalarial and antiarrhythmic agents.

3,823,147
THIOPHENYL-SUBSTITUTED QUINOPHTHALONE DISPERSION DYESTUFFS

Ernst Spietschka, Oberauroff, and Friedrich Ische, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Original application May 19, 1969, Ser. No. 825,971, now Patent No. 3,655,672, dated Apr. 11, 1972. Divided and this application July 16, 1971, Ser. No. 163,419
Claims priority, application Germany, May 24, 1968, P 17 69 437.0
Int. Cl. C07d *33/46*
U.S. Cl. 260—283 S **4 Claims**

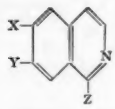
3-Hydroxy-quinophthalone dyestuffs substituted in the 4-position by an ether or thioether group, and a process for preparing them. Said dyestuffs yield on synthetic fibrous materials, especially those from polyethylene terephthalates, yellow dyeings having good fastness to light, wet processing and solvents and a remarkably good fastness to thermofixation and ironing.

3,823,148
4-BIPHENYLYL ISOQUINOLINE DERIVATIVES

Alexander Bertus Arnold Jansen, 6 Linkwood Road, Burnham, England; John Hollowood, Saint Martin's Cottage, Highfield Lane, Nawton, England; and Alan Brian Wilson, 12 Chilterns Park, Bourne End, England

No Drawing. Filed May 25, 1972, Ser. No. 256,955
Claims priority, application Great Britain, June 3, 1971, 18,765/71
Int. Cl. C07d *35/28*
U.S. Cl. 260—289 R **3 Claims**

It has been found that new isoquinolines of the formula



where X and Y are free or etherified hydroxy groups and Z is one of certain selected substituents and their di- and tetra-hydrogenated derivatives, and the acid addition salts thereof are pharmaco'ogically active, for instance, on the cardiovascular system as hypotensives and on the central nervous system as depressants and anticonvulsants.

3,823,149

3a,4,5,9b-TETRAHYDRO-3,5-ETHANONAPHTH[2,1-d]OXAZOL-2(3H)-ONES

Noel F. Albertson, East Greenbush, N.Y. (5 Pheasant Lane, R.D. 1, Castleton-on-Hudson, N.Y. 12033)

No Drawing. Continuation-in-part of abandoned application Ser. No. 43,556, June 4, 1970. This application May 26, 1972, Ser. No. 257,343

Claims priority, application Canada, May 31, 1971, 114,432

Int. Cl. C07d *39/00, 85/28*

U.S. Cl. 260—293.55 3 Claims

1,2,3,4,5,6 - Hexahydro-1-oxo-3-(hydrocarbon or substituted hydrocarbon) - 8 - (H or OH)-6-(H or alkyl)-11-(H or alkyl)-2,6-methano-3-benzazocines and 1-hydroxy secondary and tertiary alcohols obtainable therefrom by reduction and by Grignard reactions, and esters of the same, are useful as central nervous system depressants, particularly as analgesics and as analgesic antagonists. The 3-substituent is introduced by alkylation, directly or by N-acylation followed by reduction of the resulting amides, of the corresponding >NH compounds either before or after introduction of the 1-oxo group into the compounds having two hydrogens at the 1-position by chromium(VI) oxidation. Various intermediates and derivatives are also described, including 3a,4,5,9b-tetrahydro - 3,5 - ethanonaphth[2,1-d]oxazol - 2(3H) - ones obtained by interacting 1,2,3,4,5,6-hexahydro - 1 - hydroxy-2,6-methano-3-benzazocines with phosgene or by heating 1,2,3,4,5,6-hexahydro-1-hydroxy - 3 - carbalkoxy - 2,6 - methano-3-benzazocines with alkoxide ion.

3,823,150

2-(FURFURYL-METHYL)-6,7-BENZOMORPHANS AND ACID ADDITION SALTS THEREOF

Herbert Merz, Rheinstrasse 170; Adolf Langbein, Theodor-Fliedner Str. 45; Helmut Wick, Gehauweg 10; and Klaus Stockhaus, Tannenweg, 11, all of D-6507 Ingleheim am Rhein, Germany

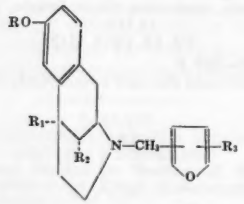
No Drawing. Filed Feb. 1, 1972, Ser. No. 222,669

Claims priority, application Germany, Feb. 8, 1971, P 21 05 743.2; Feb. 25, 1971, P 21 08 954.3

Int. Cl. C07d *39/100*

U.S. Cl. 260—293.54 11 Claims

Compounds of the formula



wherein

R is hydrogen, methyl or acetyl,

R_1 is hydrogen, methyl, ethyl, n-propyl, isopropyl or butyl, and

R_2 and R_3 are each hydrogen, methyl or ethyl,

and their non-toxic, pharmacologically acceptable acid addition salts; the compounds as well as their salts are useful as opiate antagonists non-narcotic analgesics and antitussives.

3,823,151

4,5,6,7-TETRAHYDROTHIENO[2,3-d]PYRIDINES

Kurt Eichenberger and Paul Schmidt, Therwil, and Ernst Schweizer, Basel, Switzerland, assignors to Ciba-Geigy Corporation

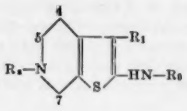
No Drawing. Original application July 25, 1969, Ser. No. 845,054, now Patent No. 3,627,766. Divided and this application Sept. 28, 1971, Ser. No. 184,606

Claims priority, application Switzerland, Aug. 2, 1968, 11,640/68; June 20, 1969, 9,468/69

Int. Cl. C07d *63/18*

U.S. Cl. 260—294.8 C 3 Claims

Compounds of the formula



in which R_0 stands for an acyl group or hydrogen, R_1 for a free or functionally converted carboxyl group, and R_2 for an optionally substituted hydrocarbon radical or hydrogen and which may be substituted in positions 4, 5 and/or 7, are useful as antiphlogistics and as starting materials.

3,823,152

3-SUBSTITUTED-2-PIPERIDINETHIONES AND HOMOLOGUES THEREOF

Akiro Morimoto, Matsubara, Hisashi Takasugi, Ikeda, Yoshiharu Nakai, Otsu, and Takao Watanabe, Ikeda, Japan, assignors to Fujisawa Pharmaceutical Co., Ltd.

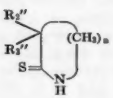
No Drawing. Filed July 29, 1971, Ser. No. 172,347

Claims priority, application Japan, July 30, 1970, 45/67,049; Sept. 4, 1970, 45/77,908

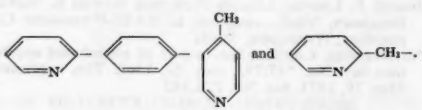
Int. Cl. C07d *29/36*

U.S. Cl. 260—293.69 2 Claims

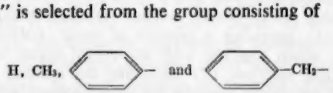
This invention relates to compounds of the formula:



wherein n is 3 or 4, R_2'' is selected from the group consisting of



and R_3'' is selected from the group consisting of



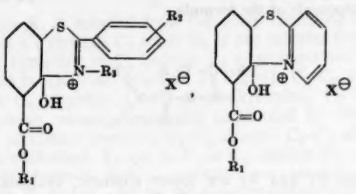
These compounds inhibit gastric secretion and are useful in treatment for a digestive ulcer.

3,823,153
2-SUBSTITUTED-3a,4,5,6,7,7a-HEXAHYDRO-3a-HYDROXYBENZOTHIAZOLIUM HALIDES

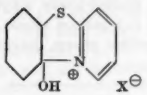
Peter H. L. Wei, Springfield, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Original application Mar. 17, 1971, Ser. No. 125,410, now Patent No. 3,694,449. Divided and this application May 15, 1972, Ser. No. 253,376
Int. Cl. C07d *91/24*
U.S. Cl. 260—306.7 **2 Claims**

Novel pharmacologically active compounds have been prepared of the formulae



and



wherein R_1 and R_3 are selected from the group consisting of hydrogen and (lower)alkyl; R_2 is selected from the group consisting of hydrogen, (lower)alkyl, nitro, halogen, (lower)alkoxy, hydroxy and

wherein R_4 and R_5 when not concatenated are independently selected from the group consisting of hydrogen and (lower)alkyl and when concatenated form a radical selected from the group consisting of piperazinyl, piperidinyl, pyrrolidinyl and morpholinyl; X is halogen.

3,823,154
2-TRIFLUOROMETHYLBENZIMIDAZOLES

John Roger Corbett, Linton, and Albert Percival Hauxton, England, assignors to Fisons Limited, London, England

No Drawing. Filed July 23, 1971, Ser. No. 165,696
Claims priority, application Great Britain, July 29, 1970, 36,673/70; Mar. 16, 1971, 7,044/71
Int. Cl. C07d *49/38*
U.S. Cl. 260—309.2 **14 Claims**

2-Trifluoromethylbenzimidazoles having a sulphamoyl or substituted sulphamoyl substituent on the benzene ring combat mammalian parasites, for example liver fluke in mammals e.g. sheep, and cattle tick and sheep blowfly.

3,823,155
IMIDAZOLINE DERIVATIVES WITH DIURETIC PROPERTIES

Cornelis van der Stelt, Haarlem, Netherlands, assignor to Gist-Brocades N.V., Delft, Netherlands

No Drawing. Filed Dec. 20, 1971, Ser. No. 210,210
Int. Cl. C07d *49/34*
U.S. Cl. 260—309.6 **3 Claims**

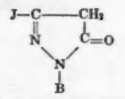
Imidazoline derivatives are disclosed which carry on the 1-position, a substituted or unsubstituted bis(phenyl) methyl, 5H-dibenzocyclohepten-5-yl or 10,11-dihydro-5H-dibenzocyclohepten-5-yl substituent. The compounds have diuretic activity.

3,823,156
PROCESS FOR THE PRODUCTION OF PYRAZOLONE DERIVATIVES

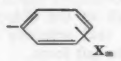
Eitaro Oku, Daijiro Nishio, and Hirokatsu Ezawa, Odawara, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

No Drawing. Filed Dec. 6, 1971, Ser. No. 205,309
Claims priority, application Japan, Dec. 4, 1970, 45/106,716
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 A **7 Claims**

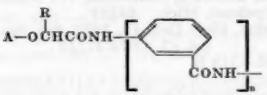
A process for the production of a pyrazolone derivative represented by the general formula



wherein B represents

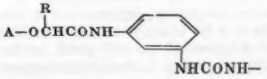


where X, which may be the same or different when m is 2–5, represents a hydrogen atom, an alkyl group, an alkoxyl group, an aryl group, an aryloxyl group, a cyano group, or a halogen atom, and m is 1–5, and J represents

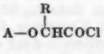


wherein A represents

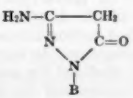
where R_1 is a hydrogen atom or an alykyl group and R_2 is an alkyl group; R represents a hydrogen atom or an alkyl group having 1–6 carbon atoms, and n is 0 or 1 or



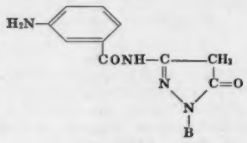
wherein A and R have the same meaning as defined above, which comprises condensing a compound represented by the following general formula



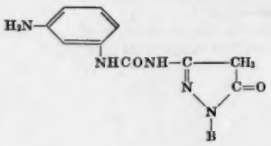
wherein A and R have the same meaning as defined above and one compound represented by one of the following general formulae:



wherein B has the same meaning as defined above,



wherein B has the same meaning as defined above, or



wherein B has the same meaning as defined above in acetonitrile under such conditions which form the hydrochloride or the amine salt of the objective compound, and thereafter recovering said objective compound from the hydrochloride or amine salt form.

3,823,157

PYRAZOLODIAZEPINE COMPOUNDS AND METHODS FOR THEIR PRODUCTION

Horace A. De Wald, 2704 Colony Road, Ann Arbor, Mich. 48104, and Sandra J. Lobbestael, 777 Washtenaw Ave., Apt. 5, Ypsilanti, Mich. 48197

No Drawing. Filed Dec. 15, 1972, Ser. No. 315,631
Int. Cl. C07d *49/18*
U.S. Cl. 260—310 R **9 Claims**

1,6,7,8-Tetrahydropyrazolo[3,4-e][1,4]diazepine compounds, substituted in the 1- and 3-positions by methyl or ethyl, optionally in the 6-position by methyl, optionally in the 8-position by methyl or ethyl, and in the 4-position by *m*-substituted phenyl, in which the substituent is chloro, bromo, fluoro, methyl, nitro, hydroxy, trifluoromethyl, amino, cyano, or azido, by 3,4-dichlorophenyl, or by 3-chloro-*o*-tolyl; acid-addition salts thereof; and their production by (a) reacting a 4-(substituted benzoyl)-5-halopyrazole or a 4-(substituted benzimidoyl)-5-halopyrazole with an ethylenediamine, (b) brominating a 4-phenylpyrazolodiazepine, (c) nitrating a 4-phenylpyrazolodiazepine, (d) hydrogenating a 4-(*m*-nitrophenyl)pyrazolodiazepine, (e) reacting a diazonium salt derived from a 4-(*m*-aminophenyl)pyrazoldiazepine with an aqueous solution of an inorganic azide or cyanide salt, and (f) oxidizing a hexahydropyrazolodiazepine. The compounds are useful as intermediates and as antidepressant agents.

3,823,158

COMPOUNDS CONTAINING AN IMIDE LINKAGE

John K. Allen, Batavia, Ill., assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 770,383, Oct. 24, 1968. This application Mar. 8, 1971, Ser. No. 122,100
Int. Cl. C07d *27/52*
U.S. Cl. 260—326 N **4 Claims**

Reaction products of polyarylpolyisocyanates and an anhydride of an aliphatic dicarboxylic acid, said anhydride having from 3–4 carbon atoms, phthalic anhydride or the completely halogenated derivatives thereof or chlorendic anhydride are disclosed for use in rigid foam compositions, surface coatings and the like.

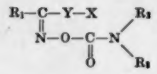
3,823,159

O-(SUBSTITUTED CARBAMOYL)-3-PYRROLIDINOPROPIO AND BUTYROPHENONE OXIMES

Marvin J. Karten, Ardsley, N.Y., assignor to USV Pharmaceutical Corporation, Tuckahoe, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 877,822, Nov. 18, 1969, now Patent No. 3,636,111, which is a continuation-in-part of application Ser. No. 714,450, Mar. 20, 1968, which in turn is a continuation-in-part of application Ser. No. 680,048, Nov. 2, 1967, both now abandoned. This application May 7, 1971, Ser. No. 141,374
Int. Cl. C07d *27/04*
U.S. Cl. 260—326.3 **12 Claims**

Compounds of the formula



wherein R_1 and R_3 are lower aliphatic, cycloalkyl, or aromatic (including hetero), R_2 is hydrogen, aromatic, lower aliphatic, or phenyl-lower alkyl, Y is an alkylene group having from 1–5 carbon atoms, and X is a heterocyclic secondary amino group, having potent analgesic activity.

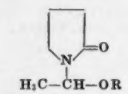
3,823,160

PREPARATION OF ETHER ADDUCTS OF N-VINYL-2-PYRROLIDONE

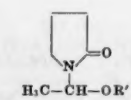
Richard F. Smith, Morristown, N.J., assignor to GAF Corporation, New York, N.Y.

No Drawing. Filed Oct. 4, 1971, Ser. No. 186,489
Int. Cl. C07d *27/08*
U.S. Cl. 260—326.5 FL **7 Claims**

Process for the preparation of ether adducts of N-vinyl-2-pyrrolidone having the general formula:



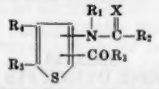
wherein R is the residuum of an active hydroxyl-containing compound free of functional groups which are additively reactive with a double bond under the reaction conditions, comprising admixing an alcohol and a catalytically effective amount of an alcohol soluble organic acid or salt of aluminum, boron, calcium, iron, gallium, rhodium, palladium, tin or mercury, admixing vinyl pyrrolidone therewith at a rate sufficient to maintain the reaction temperature within the range of from about 0° C. to about 100° C. and thereafter, recovering said ether adduct. Novel ether adducts of N-vinyl-2-pyrrolidone having the general formula:



wherein R′ is a cyclic or acyclic aliphatic hydrocarbon radical containing from 5 to about 20 carbon atoms are also provided.

3,823,161
AMINOTHIOPHENE DERIVATIVES
Joseph H. Lesser, Woodside, N.Y., assignor to Esso Research and Engineering Company
No Drawing. Filed May 7, 1970, Ser. No. 35,587
Int. Cl. C07d *63/16*
U.S. Cl. 260—332.2 C **9 Claims**

The compounds of the subject invention are represented by the following formula

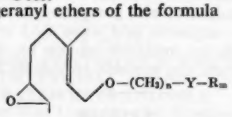


wherein R_1 is selected from the group consisting of hydrogen, C_1 through C_8 alkyl; R_2 is one selected from the group consisting of C_1 through C_6 alkyl (optionally substituted by chlorine, bromine, or cyano), C_1–C_6 alkoxy, C_1 to C_6 alkylthio, C_1–C_6 monoalkylamino, C_2–C_8 dialkylamino, phenyl (optionally substituted by chlorine, nitro, or trifluoromethyl), C_3–C_8 alkenyl, C_3–C_6 alkynyl, C_3–C_8 cycloalkyl; R_3 can be C_1 to C_{10} alkoxy, C_1 to C_{10} monoalkylamino, C_2–C_{10} dialkylamino, phenoxy, and anilido; R_4 and R_5 can be the same or different and are selected from the group consisting of hydrogen, C_1 to C_6 alkyl, phenyl, chlorine and bromine; X is either O or S.

These compounds have been found to possess pesticidal activity and, in particular, post- and pre-emergence herbicidal activity as well as fungicidal activity.

3,823,162
6,7-EPOXYGERANYL ETHERS OF OXYGEN HETEROCYCLIC COMPOUNDS
Edward Koon Wah Wat, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Mar. 2, 1972, Ser. No. 231,394
Int. Cl. C07d *13/04, 15/04*
U.S. Cl. 260—340.7 **4 Claims**

6,7-Epoxygeranyl ethers of the formula



wherein

n=0 to 3

Y=5 or 6 membered di- or trivalent heterocyclic group containing up to 2 atoms of oxygen and up to 1 atom of sulfur;

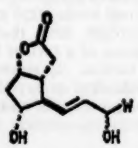
R= hydrogen, alkyl, perchloroalkyl or alkoxy of up to 4 carbons; and

m=1 or 2;

are modifiers of insect growth and development.

3,823,163
PROCESS FOR PREPARING BICYCLIC LACTONE DIOLS
Robert C. Kelly, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
No Drawing. Application Sept. 16, 1971, Ser. No. 181,246, now Patent No. 3,711,515, which is a continuation-in-part of abandoned application Ser. No. 93,483, Nov. 27, 1970. Divided and this application Dec. 15, 1972, Ser. No. 315,727
Int. Cl. C07d *5/32*
U.S. Cl. 260—343.3 **4 Claims**

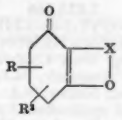
Process for preparing (1) bicyclic lactone diols of the formula



wherein W is 1-pentyl, cis 1-pent-2-enyl or 1-pent-2-ynyl, and (2) prostaglandins E_3 and $F_{3\alpha}$ in their racemic and optically active configurations, their enantiomorphs, and their 15-epimers; and the products prepared therein. The diols are useful intermediates in preparing prostaglandins having pharmacological utility.

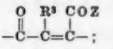
3,823,164
5,6,7,8-TETRAHYDRO-2,5(AND 4,5)-DIOXO-1-BENZOPYRANS
John H. Sellstedt, King of Prussia, Stanley C. Bell, Penn Valley, and Ronald J. McCaully, Malvern, Pa., assignors to American Home Products Corporation, New York, N.Y.
No Drawing. Original application Aug. 26, 1971, Ser. No. 175,409, now Patent No. 3,775,435. Divided and this application Dec. 14, 1972, Ser. No. 315,247
Int. Cl. C07d *7/26*
U.S. Cl. 260—343.2 R **6 Claims**

Compounds of the formula:

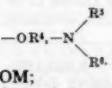


in which

X is the moiety



Z is a member selected from the group consisting of



—Cl, —Br, and —OM;

R, R^2, R^3, R^4 and R^5 are independently selected from the group consisting of —H, lower alkyl, phenyl and benzyl,

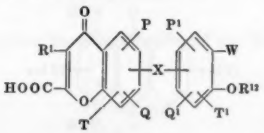
R^6 is selected from the group consisting of —H, lower alkyl, phenyl, benzyl, lower dialkylaminoalkyl and cycloalkyl of 3 to 10 carbon atoms, and when taken with R^5 and the nitrogen atom to which they are bonded forms the morpholino, piperidino and piperazino groups, and

M is selected from alkali metal cations and —NH_4,

are immuno-inflammatory agents possessing antiallergic and antiinflammatory activity. The compounds of this invention are also intermediates for the synthesis of known chromone and coumarin derivatives.

3,823,165
PHARMACEUTICALLY ACTIVE COMPOUNDS
Hugh Cairns and Peter Bennett Johnson, Loughborough, England, assignors to Fisons Limited, Suffolk, England
No Drawing. Continuation-in-part of application Ser. No. 871,972, Oct. 28, 1969, now Patent No. 3,673,218. This application Apr. 22, 1971, Ser. No. 136,579
Claims priority, application Great Britain, Apr. 25, 1970, 20,002/70
Int. Cl. C07d *7/34*
U.S. Cl. 260—345.2 **16 Claims**

Compounds of formula I



I

in which

P, Q, T, P^1, Q^1 and T^1 may be the same or different and each may be selected from hydrogen or a substituent other than hydrogen,

R^1 is hydrogen or a substituted or unsubstituted alkyl or alkoxy group containing from 1 to 10 carbon atoms or a substituted or unsubstituted aryl group,

R^{12} is hydrogen, a group $—COCH_2R^1$, an alkyl group, or an alkyl substituted allyl group containing up to 6 carbon atoms,

X is a carbon to carbon bond or a single atom, which single atom may carry substituents which do not form part of the linkage itself between the two benzene nuclei, and

W represents a hydrogen atom or a $—COCH_2R^1$ group,

and pharmaceutically acceptable derivatives thereof are provided, the compounds being useful as intermediates and also as antagonists of the slow-reacting substance of anaphylaxis (SRS-A). Pharmaceutical compositions containing the compounds of formula I and processes for making the compounds of formula I are also described.

3,823,166
5-LOWER ALKANOYL-2-(2-AZIDOACETAMIDO) BENZOPHENONE

Robert Ye-Fong Ning, West Caldwell, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Apr. 15, 1970, Ser. No. 28,935, now Patent No. 3,686,308. Divided and this application July 13, 1972, Ser. No. 271,306
Int. Cl. C07c *117/00*
U.S. Cl. 260—349 **3 Claims**

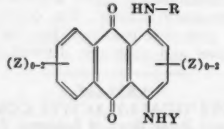
The present invention relates to processes for the preparation of 7-lower alkanoyl - 1,4 - benzodiazepin-2-ones. These compounds are known to be useful as muscle relaxants, sedatives and anticonvulsants.

3,823,167
PIGMENT DYESTUFFS

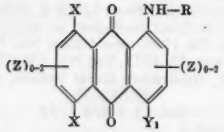
Karl-Heinz Peters, Cologne-Buchheim, and Rütger Neeff, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application June 25, 1969, Ser. No. 836,634, now Patent No. 3,699,126. Divided and this application June 29, 1971, Ser. No. 158,066
Claims priority, application Germany, June 26, 1968, P 17 68 745.5, P 17 68 755.7, P 17 68 756.8
Int. Cl. C09b *1/42*
U.S. Cl. 260—372 **2 Claims**

Dyestuffs of the formulae

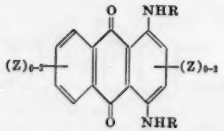


(I)



(II)

or



(III)

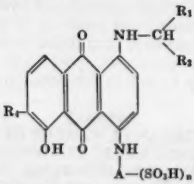
wherein Z is a substituent, one X is a member NHR and the other is hydrogen or a substituent Z, Y is an optionally substituted hydrocarbon residue or an acyl group, Y_1 is hydrogen or a substituent, and R is a moiety CO—B—CO—NH—E where B is a bond, saturated or unsaturated alkylene with or without hetero atoms and substituents, mono or polynuclear arylene with or without substituents, cycloalkylene with or without substituents or heteroarylene with or without substituents and E is a radical B or an aralkyl group; as well as their preparation and use as pigments; the novel dyestuffs are pigment dyestuffs and free of sulfonic acid and carboxylic acid groups.

3,823,168
ANTHRAQUINONE DYESTUFFS CONTAINING SULPHONIC ACID GROUPS

Walter Hohmann and Klaus Wunderlich, Leverkusen, and Hans-Samuel Bien, Burscheid, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 23, 1970, Ser. No. 49,156
Claims priority, application Germany, June 27, 1969, P 19 32 647.7
Int. Cl. C09b *1/52*
U.S. Cl. 260—373 **11 Claims**

Dyestuffs which contain sulphonic acid groups and correspond to the formula



in which R_1 and R_2 denote lower alkyl radicals with 1–3 carbon atoms, which may be substituted; A means an optionally substituted aliphatic, cycloaliphatic, araliphatic, aromatic or heterocyclic radical; n stands for 0, 1 or 2; and R_4 denotes a sulphonic acid group when $n=0$ and denotes hydrogen or a sulphonic acid when $n=1$ or 2.

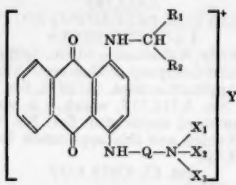
The dyestuffs are eminently suitable for the dyeing and printing of natural and synthetic polyamide fibre materials.

3,823,169
QUATERNARY ANTHRAQUINONE DYESTUFFS

Alfred Staub, Binningen, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Apr. 12, 1971, Ser. No. 133,379
Claims priority, application Switzerland, Apr. 14, 1970, 5,494/70
Int. Cl. C09b *1/28*
U.S. Cl. 260—378 **6 Claims**

A cationic anthraquinone dyestuff, the cationic portion of which is free of groups that dissociate acidly in water and corresponds to the formula



(I)

wherein R_1 and R_2 each represent a lower alkyl group, Q represents a lower alkylene group, X_1 and X_2 each denotes an optionally substituted lower alkyl group, or X_1 and X_2 together with the nitrogen atom that unites them and, optionally with inclusion of a further hetero atom, represent a heterocyclic radical, X_3 represents an optionally substituted alkyl, cycloalkyl or arylalkyl radical, and Y represents the anion equivalent of an inorganic or organic acid.

3,823,170
PHOSPHATIDES

Paul A. Seaberg and Lester P. Hayes, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed Dec. 7, 1972, Ser. No. 313,017
Int. Cl. A23j 7/00; C07f 9/02
U.S. Cl. 260—403 **15 Claims**

Modified lecithin products exhibiting improved emulsification properties are directly obtained from crude vegetable oils under an integrated and continuous process. The crude oils are initially treated with a small amount of aqueous acid anhydride with the resultant acetylated wet gum being partitioned from the crude oil. The acetylated wet gum is then admixed with a base and subjected to controlled process conditions under elevated drying conditions to provide a dry modified lecithin product having an acid value of about 10 to about 25.

3,823,171
FLUORINATED ESTERS

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

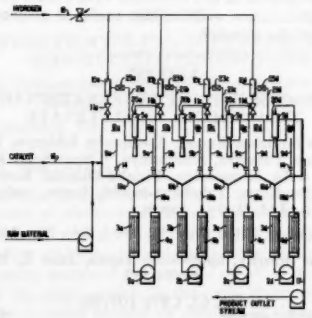
No Drawing. Application July 9, 1971, Ser. No. 161,310, which is a division of application Ser. No. 826,655, May 21, 1969, now Patent No. 3,637,791, which is a division of application Ser. No. 704,206, Dec. 28, 1967, now Patent No. 3,465,050, which is a division of application Ser. No. 623,483, Jan. 9, 1967, now Patent No. 3,419,602, which in turn is a division of application Ser. No. 398,129, Sept. 21, 1964, now Patent No. 3,384,628. Divided and this application Aug. 25, 1972, Ser. No. 283,688
Int. Cl. C09f 7/00; C011c 3/00
U.S. Cl. 260—408 **2 Claims**

Fluorinated alcoholates are prepared by reacting a fluoro-ketone with an alkali metal fluoride. The alcoholates may be reacted with acyl halides to produce esters useful for enhancing the water- and oil-repellency of textiles.

3,823,172
PROCESS FOR CONTINUOUS AND SELECTIVE CATALYTIC PARTIAL HYDROGENATION OF UNSATURATED FATS AND OILS

Gunther Max Leuteritz, 106 Zehntenstrasse, 4133 Pratteln, Switzerland

Continuation-in-part of abandoned application Ser. No. 759,543, Sept. 13, 1968. This application June 28, 1971, Ser. No. 157,501
Claims priority, application Austria, Mar. 25, 1968, A 2,937/68
Int. Cl. B01j 9/14; C11c 3/12
U.S. Cl. 260—409 **1 Claim**



The continuous and selective catalytic partial hydrogenation of organic compounds which in the liquid state are mixed with a catalyst and successively circulated in a plurality of stages is carried out in an apparatus which comprises a multiple stage reactor, of which each stage includes a reaction chamber through which flows the material to be treated in transverse direction. A circulation conduit is provided for each of the reaction chambers, which contain a suction nozzle connected to the inlet end of the circulation conduit. A suction chamber accommodates the suction nozzle and a conduit opens into the suction chamber to supply predetermined amounts of hydrogen under a predetermined pressure.

3,823,173
NICKEL COMPLEXES FOR CURING POLYCHLOROPRENES

Rolland Shih-Yuan Ro, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 11, 1972, Ser. No. 296,567
Int. Cl. C07f 15/04
U.S. Cl. 260—439 R **4 Claims**

Novel complex compounds of two moles of 2-dimethyl-aminoethanol with one mole of nickel thiocyanate or nickel chloride, which can be prepared by a process comprising mixing at least two moles of the 2-dimethylaminoethanol with one mole of the nickel salt in a solvent in which the nickel salt is soluble and evaporating off the solvent and any 2-dimethylaminoethanol in excess of 2 moles per mole of nickel salt, are useful in improved processes for vulcanizing dialkyl xanthogen disulfide-modified chloroprene polymers by heating said polymer in contact with zinc oxide and with the nickel complex compounds as curing agents.

3,823,174
PROCESS FOR PREPARATION OF AROMATIC ISOCYANATES

Philip D. Hammond, North Haven, and Nicholas B. Franco, Brookfield, Conn., assignors to Olin Corporation, New Haven, Conn.

No Drawing. Filed Dec. 18, 1972, Ser. No. 315,937
Int. Cl. C07c 119/04
U.S. Cl. 260—453 PC **11 Claims**

Aromatic isocyanates are produced directly from aromatic nitro compounds in a batch or continuous process in which carbon monoxide and aromatic nitro compounds are reacted in the presence of a solvent and catalyst at an elevated temperature and pressure until there is essentially complete conversion of the nitro compound followed by the reaction of successive charges of additional nitro compound.

3,823,175
HALOGENATED NEOPENTYL CHLOROFORMATES

Jurgen H. Exner and Eric R. Larsen, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Mar. 19, 1971, Ser. No. 126,283
Int. Cl. C07c 69/64; C08g 51/58, 51/00
U.S. Cl. 260—463 **5 Claims**

Halogenated monochloroformates of the formula

$$(XCH_2)_3CCH_2OC(=O)Cl$$

and halogenated bischloroformates of the formula

$$\begin{array}{l} CH_2X \quad O \\ | \quad\quad \| \\ C(CH_2OCCl)_2 \\ | \\ CH_2X \end{array}$$

wherein each X is independently Br or Cl have been discovered to be fire retardants for thermo-

plastic polymers, especially unsaturated polyester. These compounds are also useful intermediates to prepare very desirable fire retardants for fibers.

3,823,176

ESTER-CONTAINING AMINE-BASED LIQUID POLYOLS AND USE IN PREPARATION OF URETHANE COMPOSITIONS

William W. Levis, Jr., Wyandotte, and Louis C. Pizzini, Trenton, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation-in-part of application Ser. No. 728,814, May 13, 1968, now Patent No. 3,585,185. This application May 7, 1971, Ser. No. 141,408

Int. Cl. C07c *101/00*

U.S. Cl. 260—468 J **8 Claims**

Ester-containing amine-based liquid polyols are prepared by the reaction of alkylene oxide condensates of amines with halogen-containing organic acid anhydrides and alkylene oxides. The polyols are particularly useful in the preparation of flame-retardant polyurethane foams.

3,823,177

INSECTICIDAL ESTERS OF SPIRO CARBOXYLIC ACIDS

Wayne I. Fanta, Colerain Township, Hamilton County, and Joel I. Shulman, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed June 25, 1971, Ser. No. 157,033

Int. Cl. C07c *69/74*

U.S. Cl. 260—468 G **1 Claim**

Described are certain spiro carboxylic acids and their allethrolone esters. The esters of these acids possess unique insecticidal properties and are useful as such in home, garden and agricultural applications.

3,823,178

NOVEL m-(3,3 - DISUBSTITUTEDUREIDO)PHENYL (α-CYANOALKYL)CARBAMATES AND METHOD FOR THE CONTROL OF UNDESIRABLE PLANT SPECIES THEREWITH

Karoly Szabo, Stiegengasse 4/16, A–1060, Vienna, Austria, and Venkat Rao Ganti, 21 Caton Drive, Dewitt, N.Y. 13214

No Drawing. Filed May 8, 1972, Ser. No. 251,489

Int. Cl. C07c *121/52*

U.S. Cl. 260—465 D **7 Claims**

The present invention relates to novel *m*-(3,3-disubstitutedureido)phenyl (α-cyanoalkyl)carbamates and to a method for the control of undesirable plant species therewith.

The invention further relates to a method for the preparation of the above-said compounds.

3,823,179

AMIDINOTHIOCARBAMATES

Julius Jakob Fuchs, 1104 Greenway Road, Forwood, Wilmington, Del. 19803

No Drawing. Filed Dec. 7, 1972, Ser. No. 312,904

Int. Cl. C07c *129/12*

U.S. Cl. 260—468 E **4 Claims**

Certain novel amidinocarbamates and amidinothiocarbamates are broad spectrum herbicides, which can be applied to the locus of undesired vegetation either preemergence or postemergence. A typical representative of this class of compounds is methyl N-(N-cyclohexylcarbamoyl-N',N'-dimethylamidino)-N-methylcarbamate.

3,823,180

5,6-TRANS $PGF_{2\alpha}$ AND $PGF_{2\beta}$

Frank H. Lincoln, Jr., Portage, and John E. Pike, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Application June 28, 1971, Ser. No. 157,651, now Patent No. 3,759,978, which is a continuation-in-part of abandoned application Ser. No. 72,511, Sept. 15, 1970. Divided and this application Apr. 23, 1973, Ser. No. 353,479

Int. Cl. C07c *61/32, 69/74*

U.S. Cl. 260—468 D **11 Claims**

5,6-Trans-prostaglandins E_2, $F_{2\alpha}$, $F_{2\beta}$, A_2, and B_2 are disclosed. These are useful for the same pharmacological purposes as the known prostaglandins PGE_2, $PGF_{2\alpha}$, $PGF_{2\beta}$, PGA_2, and PGB_2.

3,823,181

NOVEL 1-BENZOYLOXY-2-LOWER ALKYLAMINO-BENZOCYCLOALKANE DERIVATIVES

Masuo Murakami and Kozo Takahashi, Tokyo, Yasubumi Hirata, Ageo, Kazuo Kubo, Urawa, Toshiyasu Mase and Isao Yanagisawa, Tokyo, and Masaaki Takeda and Hiroki Ino, Ageo, Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

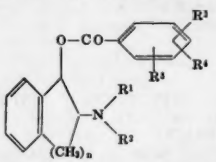
No Drawing. Filed June 14, 1972, Ser. No. 262,623

Claims priority, application Japan, June 22, 1971, 46/44,491; Dec. 6, 1971, 46/98,495; Dec. 10, 1971, 46/100,049

Int. Cl. C07c *93/20*

U.S. Cl. 260—477 **6 Claims**

The 1-benzoyloxy-2-lower alkylaminobenzocycloalkane derivatives represented by the formula



wherein R^1 represents hydrogen atom or a lower alkyl group; R^2 represents a lower alkyl group; R^3, R^4 and R^5 are the same or different from each other and each represents a hydrogen atom, a halogen atom, a lower alkyl group, a lower alkoxy group, phenyl group, amino group, a lower alkylamino group, an acylamino group or nitro group; *n* is an integer of 1–3, and the non-toxic mineral acid salts thereof.

The compounds of this invention have a local anesthetic and analgesic action and are also useful in promoting the function of the stomach.

3,823,182

PROCESS FOR THE PREPARATION OF THIAMPHENICOL GLYCINATE

Terumaro Nonaka, Konan, Yoshinobu Ishiguro, Hajimagun, Isao Yamatsu, Ichinomiya, Chiaki Seki, Komaki, Shuzo Aoki, Ichinomiya, Yutaka Ohnuki, Konan, and Yoshihiro Koga, Takehaya-machi, Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

No Drawing. Filed May 31, 1973, Ser. No. 365,724

Claims priority, application Japan, June 2, 1972, 47/54,352

Int. Cl. C07c *101/06*

U.S. Cl. 260—482 R **2 Claims**

An improvement in the process for the preparation of thiamphenicol glycinate in its pharmaceutically acceptable acid salts which are known as the therapeutically

useful synthetic antibiotics, characterized in that thiamphenicol is first subjected to reaction with a lower-alkyl acetoacetate enaminoglycine, and the resulting product is then subjected to an acid hydrolysis. The purposed thiamphenicol glycinate is thus obtained in a good yield without difficulty in the procedure.

3,823,183

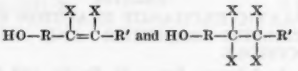
UNSATURATED ESTER OF HALOGENATED ALKENES

Gaetano F. D'Alelio, 2011 E. Cedar St., South Bend, Ind. 46617

No Drawing. Original application Dec. 19, 1968, Ser. No. 785,336, now Patent No. 3,637,813. Divided and this application Nov. 15, 1971, Ser. No. 198,949

Int. Cl. C07c *69/52, 69/60*
U.S. Cl. 260—485 H **12 Claims**

This invention deals with new unsaturated esters of α,β-unsaturated carboxylic acids derived from halogenated alcohols of the formulas



wherein R is a divalent hydrocarbon moiety having at least one and no more than 10 carbon atoms, X is a member selected from the class of bromine and chlorine, and R′ is a member selected from the class of hydrogen, X and a monovalent hydrocarbon containing at least one and no more than 20 carbon atoms. Typical esters are the acrylates, methacrylates, maleates, fumarates, itaconates and cinnamates. These monomers possess fire-retardant properties and are useful for the synthesis of polymers and copolymers.

3,823,184

16,17-SECO-$\Delta^{4,6}$ STEROIDS

Pierre Crabbe, Mexico City, Mexico, and John A. Edwards, Los Altos, and John H. Fried, Palo Alto, Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

No Drawing. Filed May 12, 1971, Ser. No. 142,739

Int. Cl. C07c *49/56, 69/14, 69/24, 69/74, 69/78*
U.S. Cl. 260—488 B **13 Claims**

The novel 16,17-secoestra-4,6-dienes, 16,17-seco-13-alkylgona-4,6-dienes and the 14β-isomers thereof useful as antiandrogenic agents and methods for their preparation.

3,823,185

IMPROVED PROCESS FOR THE PREPARATION OF ETHOXYLATED ISETHIONATES

Irwin S. Schlossman, Cincinnati, Ohio, assignor to Emery Industries, Inc., Cincinnati, Ohio

No Drawing. Filed June 18, 1973, Ser. No. 370,899

Int. Cl. C07c *143/10*
U.S. Cl. 260—513 B **5 Claims**

A process is provided whereby improvement of the production of ethoxylated isethionates in an aqueous medium is achieved. In this improved process the selectivity of ethylene oxide to the desired ethoxylated products is significantly increased by removal of all or a substantial part of the water present in the early stages of the reaction after a small amount of ethylene oxide has reacted. Additionally, ethoxylated isethionates having from about 2 to about 30 ethylene oxide repeating units and containing less than 25% undesirable glycol-ether by-products are provided.

3,823,186

ANTIBIOTIC SUBSTANCES

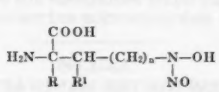
Giancarlo Lancini, Pavia, and Ettore Lazzari and Alberto Diena, Milan, Italy, assignors to Lepetit S.p.A., Milan, Italy

No Drawing. Filed June 23, 1966, Ser. No. 559,749

Claims priority, application Great Britain, July 16, 1965, 30,363/65

Int. Cl. C07c *111/00*
U.S. Cl. 260—534 R **1 Claim**

A chemical process is described for the preparation of a new antibiotic, alanosine, and its homologues, of the formula



wherein R and R^1 represent hydrogen or a lower alkyl group of 1–8 carbon atoms inclusive and *n* represents zero or an integer from 1 to 8 inclusive.

3,823,187

PRODUCTION OF L(—)-γ-AMINO-α-HYDROXYBUTYRIC ACID

Takayuki Naito and Susumu Nakagawa, Tokyo, Japan, assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed June 19, 1972, Ser. No. 264,105

Int. Cl. C07c *99/00*
U.S. Cl. 260—534 M **1 Claim**

An improved process for the preparation of L(—)-γ-amino - α - hydroxybutyric acid comprises conversion of L(+)-glutamic acid by reaction with nitrous acid to γ-carboxy-γ-butyrolacetone which is reacted with ammonia to produce L-2-hydroxy-glutaramic acid which is reacted with sodium hypochlorite to produce L(—)-γ-amino-α-hydroxybutyric acid with retention of configuration.

3,823,188

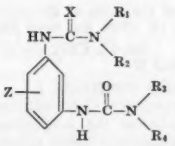
BIS-META-PHENYLENE UREAS AND THEIR UTILITY AS HERBICIDES

Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Original application Oct. 12, 1970, Ser. No. 80,120, now Patent No. 3,707,556. Divided and this application Oct. 2, 1972, Ser. No. 294,113

Int. Cl. C07c *127/00*
U.S. Cl. 260—553 C **2 Claims**

Bis-meta-phenylene ureas having the formula:



in which X represents oxygen or sulfur, R_1 represents lower alkyl or lower alkenyl, R_2 is hydrogen, R_3 represents alkyl, alkenyl, chloroacetyl, phenyl and chloro substituted phenyl, R_4 represents hydrogen, lower alkyl and furfuryl, and Z represents hydrogen or lower alkyl. The compounds of this invention are useful as herbicides.

3,823,189

DERIVATIVES OF 3-AMINO-2-HALO-2-CYCLOHEXEN-1-ONE

Ivo L. Jirkovsky, Montreal, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed Jan. 14, 1972, Ser. No. 217,958

Int. Cl. C07c *97/06*

U.S. Cl. 260—577 2 Claims

Enaminoketones characterized by having an amino, arylamino or aryl(lower)alkylamino radical attached to position 3 of a 2-halo-2-cyclohexen-1-one with optional di(lower)alkyl groups at position 5 are disclosed. The compounds are useful antibacterial and antifungal agents. Methods for their preparation and use are also disclosed.

3,823,190

PROCESS FOR THE MANUFACTURE OF CYCLOALKENONES

Peter Oberhänsli, Kusnacht, Switzerland, assignor to Givaudan Corporation, Clifton, N.J.

No Drawing. Filed Mar. 5, 1970, Ser. No. 16,925

Claims priority, application Switzerland, Mar. 10, 1969, 3,608/69

Int. Cl. C07c *45/18*

U.S. Cl. 260—586 R 4 Claims

There is provided a novel process for the preparation of certain known methyl cycloalkenones which are useful as odorants of the jasmine type.

3,823,191

TETRAKIS (3-MERCAPTOPROPYL) ETHER OF PENTAERYTHRITOL, $C(CH_2OCH_2CH_2CH_2SH)_4$

Shrikant V. Dighe, Silver Spring, Md., assignor to W. R. Grace Co.

No Drawing. Continuation-in-part of abandoned application Ser. No. 78,625, Oct. 6, 1970. This application Nov. 17, 1972, Ser. No. 307,461

Int. Cl. C07c *149/06*

U.S. Cl. 260—609 R 1 Claim

Thioacetic acid is added photochemically, or in presence of a hydroperoxide, to tetrallyl ether of pentaerythritol to prepare pentaerythritol tetrakis (3-thioacetoxy-propyl) ether, which is then hydrolyzed with sodium hydroxide solution to give a polythiol, tetrakis (3-mercaptopropyl) ether of pentaerythritol.

3,823,192

1,1-BIS(PHENYL)-2-NITROPROPANES

George Holan, Brighton, Victoria, Australia, assignor to Commonwealth Scientific and Industrial Research Organization, Campbell, Australia

No Drawing. Filed Aug. 23, 1971, Ser. No. 174,265

Claims priority, application Australia, Aug. 31, 1970, 2,367/70; Feb. 5, 1971, 3,947/71; Feb. 12, 1971, 4,010/71

The portion of the term of the patent subsequent to Apr. 18, 1989, has been disclaimed

Int. Cl. C07c *43/22*

U.S. Cl. 260—613 R 5 Claims

New insecticides comprising 1,1 - bis(4 - substituted phenyl)-2-nitropropanes, -2-nitrobutanes and -2-methyl-2-nitropropanes wherein the 4-substituents of the phenyl radicals are non-identical lower alkoxy groups, or identical or non-identical alkylthio groups, and such compounds wherein one of the 4-substituents is replaced by a 3,4-methylene-dioxy group.

These compounds are prepared by condensing the appropriate p-substituted-benzaldehyde with the appropriate nitro-alkane and reacting the carbinol product with the appropriately substituted benzene.

3,823,193

PROCESS FOR THE CONTINUOUS PREPARATION OF DICHLOROPROPANOLS

Hans Fernholz, Fischbach, Taunus, and Dieter Freudenberger, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Feb. 18, 1971, Ser. No. 116,627

Claims priority, application Germany, Feb. 20, 1970, P 20 07 867.5

Int. Cl. C07c *31/34*

U.S. Cl. 260—633 6 Claims

The present invention relates to a process for the continuous preparation of dichloropropanol from allyl alcohol and chlorine in the presence of an ether which has a boiling point of below 170° C. and which has been saturated with hydrogen chloride, which process also comprises separating the ether from the dichloropropanol and recirculating it into the chlorination of allyl alcohol.

3,823,194

CATALYTIC EXCHANGE REACTION BETWEEN ALIPHATIC BROMIDES AND ALIPHATIC ALCOHOLS

Morris A. Johnson, James D. Reedy, and Kang Yang, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed June 21, 1972, Ser. No. 265,083

Int. Cl. C07c *27/00, 29/00, 31/02*

U.S. Cl. 260—642 10 Claims

A process for catalytically exchanging bromide ions for hydroxyl groups between aliphatic bromides and aliphatic alcohols wherein the bromides and alcohols are reacted in the presence of activated carbon, including activated charcoal.

3,823,195

PREPARATION OF 1,1,2,3-TETRACHLOROPROPENE FROM 1,2,3-TRICHLOROPROPANE

Lowell R. Smith, Chesterfield, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Dec. 27, 1971, Ser. No. 212,742

Int. Cl. C07c *21/04*

U.S. Cl. 260—654 R 8 Claims

This process prepared 1,1,2,3-tetrachloropropene from 1,2,3-trichloropropane. 1,2,2,3-Tetrachloropropane is obtained as a by-product. The product and by-product of this process are useful as intern.ediates in the preparation of pesticides.

3,823,196

PRODUCTION OF CYCLIC TRIMERS OF 1,3-DIENES

Hiroyuki Morikawa and Takao Saito, Ami, Japan, assignors to Mitsubishi Petrochemical Company Limited, Tokyo-to, Japan

No Drawing. Filed June 7, 1971, Ser. No. 150,802

Claims priority, application Japan, June 18, 1970, 45/52,395

Int. Cl. C07c *3/00*

U.S. Cl. 260—666 B 9 Claims

A 1,3-diene is caused to contact a catalyst system comprising, in combination: a titanium compound

$$Ti(O—R—Cl)_nCl_{4-n}$$

(where R is an alkylene, cycloalkylene, chloroalkylene or chlorocycloalkylene group of C_2 to C_{15}, and n is 1 or 2); an organoaluminum compound AlR'_mCl_{3-m} (where R'

is an alkyl group of C_1 to C_{10}, and m is 2 or 1.5); and an additive which is a sulfoxide SOR''_2 (where R'' is an alkyl or aralkyl group of C_1 to C_{10}) or a mixture thereof and a phosphine oxide POR'''_3 (where R''' is an alkyl, aralkyl, or alkoxy group of C_1 to C_{10}), the 1,3-diene thereby undergoing cyclic trimerization whereby a cyclic trimer of low content of high polymers is produced at high reaction velocity and with high selectivity.

3,823,197

PROCESS FOR THE PREPARATION OF ALKYL AROMATIC COMPOUNDS

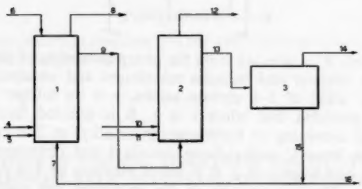
Lucio di Fiore and Benedetto Calcagno, Milan, Italy, assignors to Societá Italiana Resine S.I.R. S.p.A., Milan, Italy

Filed Nov. 2, 1972, Ser. No. 303,151

Claims priority, application Italy, Nov. 17, 1971, 31,202/71

Int. Cl. C07c *3/56*

U.S. Cl. 260—671 B **8 Claims**



Friedel-Crafts alkylations to give C_9 to C_{16}-alkylated benzenes or other hydrocarbons are conducted in a primary alkylation stage and a secondary alkylation stage, spent catalytic complexes of aluminium chloride and hydrocarbons from the first stage being regenerated in the second stage by means of aluminium powder, the amount of chloroalkylic alkylating agent supplied to the second stage preferably being such as to provide from the stoichiometric to 30% over the stoichiometric amount of hydrogen chloride required to convert the aluminium powder to aluminium chloride.

3,823,198

REMOVAL OF TERTIARY OLEFINS FROM HYDROCARBON COMPOSITIONS CONTAINING SECONDARY OLEFINS

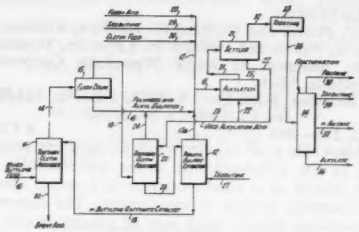
Arthur R. Goldsby, Chappaqua, N.Y., assignor to Texaco Inc., New York, N.Y.

Continuation of abandoned application Ser. No. 49,682, June 25, 1970, which is a division of application Ser. No. 740,761, June 27, 1968, now Patent No. 3,591,523. This application Aug. 27, 1971, Ser. No. 175,734

Int. Cl. C07c *11/00*

U.S. Cl. 260—677 A **9 Claims**

Removing tertiary olefins from their mixture with secondary olefins by selectively polymerizing the tertiary olefins in the presence of polymerization catalyst prepared by reacting concentrated sulfuric acid with an excess of secondary olefins until no further reaction between secondary olefins and acid occurs and extracting the resulting dialkyl sulfates with an isoparaffin hydrocarbon



solvent, leaving the polymerization catalyst as the raffinate acid.

3,823,199

PRODUCTION OF 1,6- AND 1,7-OCTADIENES

Donald Wright, Stockton-on-Tees, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 7, 1972, Ser. No. 278,343

Claims priority, application Great Britain, Aug. 18, 1971, 38,734/71

Int. Cl. C07c *11/12*

U.S. Cl. 260—680 B **7 Claims**

1,6- and/or 1,7-octadienes are produced by reacting a 1,3-butadiene such as butadiene itself with metallic platinum, palladium, rhodium, ruthenium or osmium or preferably with a compound of one or more of these metals in a non-polar solvent such as benzene in the presence of a reducing agent such as formic acid.

3,823,200

ELECTRICAL INSULATION COMPOUND, PARTICULARLY FOR HIGH POWER, HIGH TENSION COILS TO BE USED IN ROTATING ELECTRICAL MACHINERY, AND INSULATION MATERIAL UTILIZING SAID COMPOSITION

Henri Vayson de Pradenne, Paris, and Serge Marcdargent, Bois Colombes, France, assignors to Societe Generale de Constructions Electriques et Mecaniques (Alsthom), Paris, France

Continuation of abandoned application Ser. No. 50,854, June 29, 1970. This application Aug. 4, 1972, Ser. No. 278,036

Int. Cl. C08g *45/08*

U.S. Cl. 260—831 **9 Claims**

Electrical insulation sheets, tapes, formed units or the like can be made by impregnating mica flake sheets, asbestos sheet, glass fibers, or agglomerates thereof with particular binder insulation compositions. The compositions comprise a mixture of at least three of the following four components: (1) Epoxy-type resin of bisphenol A of epoxy equivalent between 174 and 195; (2) epoxy-type resin of novolac of epoxy equivalent between 175 and 182; (3) hardner, being a resorcinol-formaldehyde condensate obtained by the reaction of 2 mols of resorcinol and 1 mol of formaldehyde with an organic acid catalyst; and (4) a hardner, other than hardner (3), of phenol novolac resin prepared with an organic acid catalyst and having a chain structure of 5 to 8 links; the hardners being used with respect to the resins between 0.5 and 1.3 of the stoichiometric quantity, in other words with the resins corresponding to hydroxide/oxyrane ratios between 0.5 and 1.3, preferably 0.9.

3,823,201

HIGHLY-STABLE GRAFT COPOLYMER DISPERSIONS IN POLYOLS CONTAINING UNSATURATION AND POLYURETHANES PREPARED THEREFROM

Louis C. Pizzini and Gerhard G. Ramlow, Trenton, and John T. Patton and William W. Levis, Jr., Wyandotte, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed Dec. 4, 1972, Ser. No. 311,809
Int. Cl. C08f *13/00, 21/02*
U.S. Cl. 260—861 8 Claims

Highly-stable graft copolymer dispersions are prepared by the *in situ* polymerization in the presence of a free radical catalyst of a vinyl monomer in a polyol containing an essential amount of unsaturation. The dispersions are low-viscous liquids which may be advantageously employed in the preparation of flexible urethane foams having enhanced load-bearing properties.

3,823,202

THERMOSET POLYESTER RESIN PARTICLES

Lloyd R. Buzbee, Pittsburgh, and Robert D. Lake, Monroeville, Pa., assignors to Koppers Company, Inc.

No Drawing. Continuation-in-part of abandoned application Ser. No. 215,628, Jan. 5, 1972. This application June 21, 1973, Ser. No. 372,398
Int. Cl. C08f *1/11*
U.S. Cl. 260—861 36 Claims

Clear cured polyester beads which have excellent reflex reflective properties are prepared by suspension polymerizing a curable resin composition comprising an unsaturated polyester and a vinyl monomeric crosslinking agent in the presence of a water soluble salt.

3,823,203

VULCANIZABLE SELECTIVELY HYDOGENATED BLOCK COPOLYMER COMPOSITIONS

Harold E. De La Mare, El Cerrito, Calif., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed Mar. 29, 1971, Ser. No. 129,326
Int. Cl. C08f *15/00, 19/00*
U.S. Cl. 260—876 B 9 Claims

Vulcanizable block copolymer compositions are provided comprising (1) a selectively hydrogenated block copolymer having, prior to hydrogenation, at least one mono alpha alkenyl arene polymer block and at least one conjugated diene polymer block, said block copolymer having been hydrogenated to saturate at least 80% of the aliphatic double bonds, and (2) an unsaturated block copolymer having at least one mono alpha alkenyl arene polymer block and at least one conjugated diene polymer block. The compositions may be vulcanized with accelerated sulfur system or with peroxide systems, and after vulcanization, are insoluble products that have excellent creep resistance and improved solvent resistance.

3,823,204

ACID DYE DYEABLE ACRYLONITRILE COPOLYMER, FIBERS THEREOF AND PROCESS FOR THE PREPARATION THEREOF

Hisao Okada, Eizo Ohta, Takeji Otani, Michimasa Beppu, and Hiroaki Yoneyama, Hiroshima, Japan, assignors to Mitsubishi Rayon Company Ltd., Tokyo, Japan

No Drawing. Filed Aug. 2, 1972, Ser. No. 277,200
Claims priority, application Japan, Aug. 16, 1971, 46/62,166
Int. Cl. C08f *29/56*
U.S. Cl. 260—898 7 Claims

An acid dye dyeable copolymer of acrylonitrile, an amino group containing monomer and a quaternary ammonium salt containing monomer, fibers prepared therefrom and a process for preparing the copolymer and the fibers are disclosed. Also disclosed are blends of said copolymer with other copolymers of acrylonitrile.

3,823,205

LACQUERS BASED ON ACRYLIC POLYMER BLENDS

Werner S. Zimmt, Wynnewood, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 588,699, July 23, 1969, which is a continuation-in-part of application Ser. No. 509,147, Nov. 22, 1965, which in turn is a continuation of application Ser. No. 860,800, Sept. 24, 1969, all now abandoned. This application July 12, 1972, Ser. No. 270,969
Int. Cl. C08f *29/50*
U.S. Cl. 260—901 18 Claims

The lacquer which comprises a blend of two acrylic polymers in a liquid carrier, the difference between the glass transition temperatures of the polymers being at least 30° C.

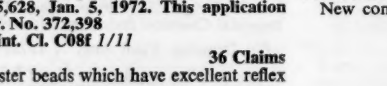
3,823,206

N-PHOSPHONOMETHYL AMIDES

Peter Golborn, Lewiston, and James J. Duffy, Buffalo, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Mar. 30, 1972, Ser. No. 239,793
Int. Cl. C07f *9/40;* C08f *45/58*
U.S. Cl. 260—932 13 Claims

New compounds are disclosed of the formula:



wherein R′ is selected from the group consisting of phenyl, lower alkenyl and halogen substituted and unsubstituted lower alkyl of 1–6 carbon atoms, *y* is an integer from 1–2 provided that when *y* is 1, R is selected from the group consisting of hydrogen, lower alkyl of 2–8 carbon atoms, benzyl, dialkylphosphonoalkyl and phenoxymethylene and when *y* is 2, R is lower alkylene of 1–4 carbon atoms. The compounds of the invention are useful as flame retardant agents for textile materials and in the production of polymers and copolymers which possess flame retardant properties.

3,823,207

PROCESS FOR THE PREPARATION OF TRIARYLPHOSPHITES

Hans Bernhard Herzog, Bensheim-Auerbach, and Rudolf Hoppe, Bensheim, Germany, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Feb. 4, 1971, Ser. No. 112,738
Claims priority, application Germany, Feb. 17, 1970, P 20 07 070.6
Int. Cl. C07f *9/08*
U.S. Cl. 260—976 8 Claims

Process for the preparation of triarylphosphites from phenols and phosphorous trichloride wherein the reaction occurs separately in three stages in consecutively connected reaction zones, each succeeding stage having a lower pressure and higher temperature than the preceding stage. The invention also provides for an apparatus for effecting the above reaction comprising a reaction vessel in the form of a column with consecutively connected reaction trays capable of being heated.

3,823,208

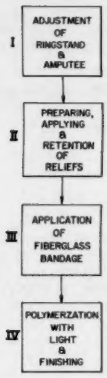
METHOD OF MAKING A PERMANENT PROSTHETIC SOCKET

Charles C. Asbelle, Oakland, Michael F. Arrigo, Berkeley, and Gerald K. Porter, Oakland, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed May 24, 1971, Ser. No. 146,386
Int. Cl. B29g *7/00;* A61f *1/08*
U.S. Cl. 264—22 2 Claims

A method of making a permanent prosthetic socket wherein the amputee is supported by a casting fixture and ultraviolet polymerizable material are applied directly to

the amputee's stump over a polypropylene stockinet to form a permanent socket. A special clam-shell ultraviolet



lamp is placed in position and the ultraviolet polymerizable material polymerized.

3,823,209

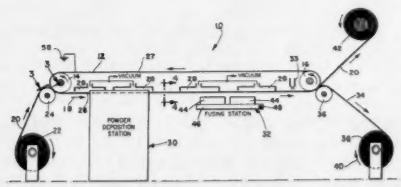
METHOD OF FUSING TOGETHER PARTICULATE, THERMOPLASTIC MATERIAL ON A SUBSTRATE

Lennox Birckhead, Jr., Rowayton, and Alden W. Olsen, New Milford, Conn., assignors to Vitek Research Corporation, Stamford, Conn.

Filed Oct. 14, 1971, Ser. No. 189,293

Int. Cl. B29f 5/00

U.S. Cl. 264—25 **12 Claims**



A method of fusing together particulate, thermoplastic material defining a layer or coating on one surface of a release mold substrate to form a self-supporting sheet which is removable from the substrate. The method includes the steps of supporting the uncoated surface of the uncoated surface of the release mold substrate in intimate and uniform contact with a surface of an insulating pad, supporting the surface of the insulating pad opposite the release mold supporting surface thereof in contact with a thermally conductive support member, applying electromagnetic radiation in the infrared region of the spectrum to the layer from only the coated side of the release mold substrate to fuse together the particulate material of said layer and removing heat from the thermally conductive support member.

3,823,210

METHOD OF MANUFACTURING ORIENTED PRODUCT OF SYNTHETIC CRYSTALLINE POLYMER

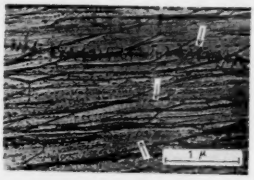
Hikaru Shii and Eisuke Oda, Yokohama, Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed May 16, 1972, Ser. No. 253,840

Claims priority, application Japan, May 22, 1971, 46/34,912; Nov. 4, 1971, 46/87,843

Int. Cl. B29d 27/00

U.S. Cl. 264—41 **10 Claims**



A method of manufacturing oriented product of synthetic crystalline polymer which comprises the steps of drawing uniaxially oriented materials of synthetic crystalline polymer to an extent of at least twice the original size in the direction of said orientation axis at a temperature of more than 30° C. below the melting point of said uniaxially oriented materials; applying tensile stress to the drawn material in the direction of draw axis in a solvent heated to a temperature ranging between a level 2° C. higher and a level 10° C. lower than the temperature at which said oriented material would be dissolved without tension; and under this condition extracting the soluble fractions of said drawn material.

3,823,211

SYNTHETIC RESIN LAMINATE AND ITS MANUFACTURING PROCESS

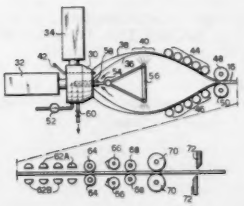
Roberto Colombo, Turin, Italy, assignor to Lavorazione Materie Plastiche L.M.P. S.p.A., Turin, Italy

Filed Dec. 13, 1971, Ser. No. 207,118

Claims priority, application Italy, Jan. 12, 1971, 67,093/71

Int. Cl. B29c 5/08, 5/10

U.S. Cl. 264—47 **11 Claims**



A synthetic resin laminate comprising a layer of synthetic foam heat-sealed to a biaxially stretched covering

film of synthetic resin. The manufacturing process comprises simultaneously coaxially extruding a tubular film extrudate and a tubular foam extrudate not contacting each other, the film extrudate being external to the foam extrudate, and axially drawing and diametrically differentially expanding the extrudate while in heat-softened state until the foam extrudate laminates on the inside of the film extrudate.

3,823,212

PROCESS FOR THE PRODUCTION OF COLLAGEN FIBER FABRICS IN THE FORM OF FELT-LIKE MEMBRANES OR SPONGE-LIKE LAYERS

Milos Chvapil, Tucson, Ariz., assignor to Firma Carl Freudenberg, Patent Abteilung, Weinheim, Germany

Continuation-in-part of abandoned application Ser. No. 878,118, Nov. 19, 1969. This application May 28, 1971, Ser. No. 148,116

Claims priority, application Germany, Nov. 27, 1968, P 18 11 290.8-44

Int. Cl. B29d *27/03*

U.S. Cl. 264—49 **17 Claims**

Production of felt-like membranes or sponge-like layers of collagen fibers by decomposing skin and/or tendons or other animal connective tissues rich in collagen under alkaline and/or acid conditions; mechanically comminuting the decomposition product; suspending the comminuted collagen stock obtained in water to form a homogeneous collagen slurry; adding a tanning or cross-linking agent to the slurry; foaming the collagen slurry; freezing the foamed collagen slurry so obtained in the form of a layer at −5 to −40° C.; incubating the frozen slurry for 1 to 30 days; and then freeing the bulk of the water therefrom by simple mechanical squeezing and/or evaporative drying.

3,823,213

PRODUCTION OF EXPANDED MOLDINGS OF OLEFIN POLYMERS

Fritz Stastny, Ludwigshafen (Rhine), Rudolf Gaeth, Limburgerhof, Pfalz, and Hans-Georg Trieschmann, Hambach, Weinstrasse, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Continuation of abandoned application Ser. No. 631,603, Apr. 18, 1967. This application Sept. 18, 1969, Ser. No. 859,477

Int. Cl. B29d *27/08;* **B29f** *5/00*

U.S. Cl. 264—51 **6 Claims**

A process for the production of moldings of expanded polymers of olefins having two or three carbon atoms in which the expanded particles of the polymer, which contain crosslinked portions, are heated in molds and fused together, if desired under pressure.

3,823,214

METHOD OF CHEMICAL EMBOSSING

John L. H. Allan, Easton, and Nathan D. Field, Allentown, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 867,404, Oct. 17, 1969. This application Feb. 22, 1972, Ser. No. 228,303

Int. Cl. B32b *3/26, 27/30*

U.S. Cl. 264—52 **10 Claims**

An improved process for the chemical embossing of a thermoplastic sheet comprising blending

(1) a vinyl resin, e.g., polyvinylchloride,
(2) a plasticizer for the vinyl resin,
(3) a blowing agent which decomposes when heated at a temperature in the range above the glass transition temperature of the plasticized vinyl resin and below the decomposition temperature of the resin,
(4) a linear polyester containing at least two olefinically unsaturated sites and capable of further polymerization of copolymerization in the presence of an addition polymerization catalyst; and
(5) a monomer containing one olefinically unsaturated site and capable of copolymerization with the polymer of (4) in the presence of an addition polymerization catalyst.

Such a blended composition is formed into a sheet and to such sheet is applied, in a pre-determined pattern, a composition comprising

(a) a catalyst that will cause polymerization of the system and, optionally,
(b) a liquid that will penetrate the sheet.

The foaming of the sheet and creation of the embossed effect is accomplished by heating the resulting sheet to a temperature sufficient to fuse the plasticized resin, decompose the blowing agent, and polymerize the olefinically unsaturated component or components.

3,823,215

PROCESS FOR PRODUCING VARIEGATED DETERGENT BARS

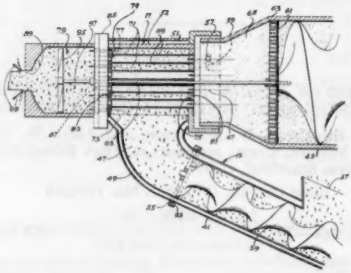
Alessandro D'Arcangeli, Castelgandolfo, Italy, assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Jan. 12, 1972, Ser. No. 217,110

Claims priority, application Italy, Jan. 23, 1971, 47,924/71

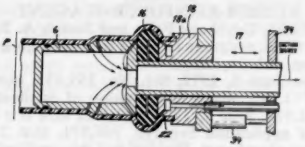
Int. Cl. B29f *3/12*

U.S. Cl. 264—75 **6 Claims**



A process for the manufacture of variegated detergent bars or cakes includes passing detergent compositions of similar solubilities and temperatures but of different colors, in solid plastic states along substantially parallel paths, out of physical contact with each other but preferably in thermal contact with each other, extruding the compositions, cutting the extrudates to lengths, mixing the cut extrudates together and, while they are mixed, maintaining them at an elevated temperature at which they are plastic and may be fused together tightly, and compacting and extruding them to a variegated detergent bar form, which may be subsequently pressed into variegated detergent cakes, such as soap cakes. Preferably, the base detergent composition, e.g., a white soap, is plodded through a plurality of cylindrical tubes while a colored soap is plodded by a different plodder into the section of a variegating head around such tubes, after which both soaps are extruded at similar velocities into a mixing and contacting section of the variegating head, wherein they are cut to lengths and a whirling motion is imparted to the cut pieces by a rotating cutter. Also described is an apparatus which may be used in practicing the process, including a variegating head containing the mentioned tubes, means for fastening the inlet portions thereof to the plodders, temperature control means and cutting and whirling means for distributing one soap or detergent through the other before final plodding.

3,823,216
METHOD OF MAKING A PIPE-COUPLING PART
Aristovoulos G. Petzetakis, Thessaloniki and Chandri St., Moschaton, Piraeus, Greece
Filed May 19, 1972, Ser. No. 255,221
Claims priority, application Greece, July 19, 1971, 45,895
Int. Cl. B29c *17/07*
U.S. Cl. 264—89 **1 Claim**

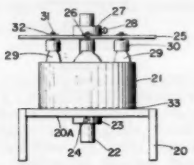


A method of making pipe-coupling parts in which a plastically deformable end of a pipe or tube is deformed from within by pressing outwardly a forming portion of a tool and by retaining a wall portion axially removed therefrom by suction against the tool and then axially shifting it with respect to another wall portion.

3,823,217
RESISTIVITY VARIANCE REDUCTION
Andrew J. Kampe, Half Moon Bay, Calif., assignor to Raychem Corporation, Menlo Park, Calif.
Filed Jan. 18, 1973, Ser. No. 324,786
Int. Cl. C04b *35/52*
U.S. Cl. 264—105 **10 Claims**

In the heat treatment of conductive carbon black-containing self-temperature regulating articles such as resistive heaters to reduce their as-formed resistivity to a value within the range from 5 to about 100,000 ohm-cm., dependence of resistivity on thermal history is reduced, resistivity variance from point to point along the article is diminished, and resistivity of the article for a given content of carbon black is reduced by exposing the article to successive thermal cycles in each of which the article is brought from a first temperature less than the melting temperature of a crystalline polymeric matrix in which the carbon black is dispersed to a second temperature at or above the same, whereafter the article is permitted to cool below that crystalline melting temperature. In the preferred extruded form where the crystalline polymeric matrix is comprised of blended polyethylene and ethylene-ethyl acrylate copolymer and contains not more than about 15% by weight carbon black, thermal cycling is preferably calculated to achieve total exposure on the order of 24 hours to oven temperatures of about 300° F. over about 5–9 thermal cycles.

3,823,218
METHOD OF MOLDING A TURRET
Friedrich H. Geurtsen and Fred J. Wochner, Holliston, Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.
Filed Sept. 11, 1969, Ser. No. 856,946
Int. Cl. B29h *21/08*
U.S. Cl. 264—162 **9 Claims**



A molded turret for carrying containers from and to a transport means (belt) to a labeling station wherein the label is transferred to the containers which are positioned in the turret.

The turret is molded from plastic such that portions of the turret have the configuration of a portion of the container to be carried thereby. The turret is fabricated by positioning at least a portion of the containers within a mold and then pouring a settable plastic into the mold. Thereafter the excess plastic from the molded article is cut away and the containers are removed to provide the molded turret.

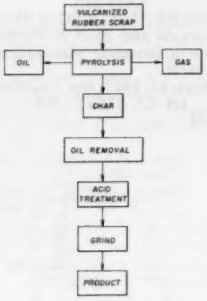
3,823,219
METHOD OF PRODUCING GLASS REINFORCED PLASTIC ARTICLES
John E. Ward, Jr., Granville, and Bordie B. Garick, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation
No Drawing. Continuation of abandoned application Ser. No. 129,194, Mar. 29, 1971. This application Feb. 27, 1973, Ser. No. 336,134
Int. Cl. B29c *3/00;* **B29d** *3/02;* **C08f** *45/10;* **C08g** *51/10;* **C08k** *1/14*
U.S. Cl. 264—331 **27 Claims**

Glass fibers having a coating of plastic material thereon are coated with an ester of a polyglycol and an unsaturated fatty acid. The fibers are chopped, mixed with a matrix resin forming material and molded under sufficient heat and pressure to hydrolyze the lubricant coating.

3,823,220
SEPARATION OF RHODIUM FROM IRIDIUM
Lorraine Guy Donaruma, Potsdam, and Lauri Vaska, Norwood, N.Y., assignors to The International Nickel Company, Inc., New York, N.Y.
No Drawing. Filed Sept. 11, 1972, Ser. No. 288,051
Int. Cl. C01g *55/00*
U.S. Cl. 423—22 **6 Claims**

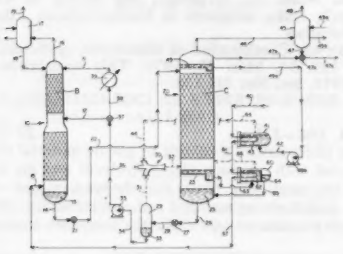
A method for separating rhodium from iridium by the selective volatilization of a rhodium halide-carbon monoxide product through special control of reaction temperature. Formation of the rhodium halide-carbon monoxide product is favored by employing a water vapor partial pressure over the reaction mixture.

3,823,221
PRODUCTION OF A CHAR REINFORCING AGENT FROM PYROLYZED SCRAP RUBBER
Lynn B. Wakefield, Grant Crane, and Edward Leo Kay, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio
Filed Mar. 20, 1972, Ser. No. 236,290
Int. Cl. C01b *31/08*
U.S. Cl. 423—449 **3 Claims**



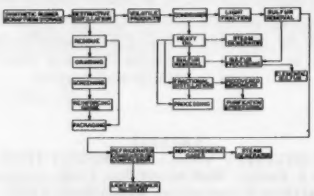
The invention relates to a rubber reinforcing agent derived from vulcanized scrap rubber. The scrap rubber is charred, treated for removal of oil and then treated with acid to remove metal compounds. This is then reduced to fine particle size. The product has been found to be a very satisfactory rubber-reinforcing agent.

3,823,222
SEPARATION OF CO_2 AND H_2S FROM GAS MIXTURES
Homer E. Benson, Pittsburgh, Pa., assignor to The Benfield Corporation, Berwyn, Pa.
Continuation of abandoned application Ser. No. 856,393, Sept. 9, 1969. This application Jan. 10, 1972, Ser. No. 216,844
Int. Cl. B01d *53/34*
U.S. Cl. 423—223 **9 Claims**



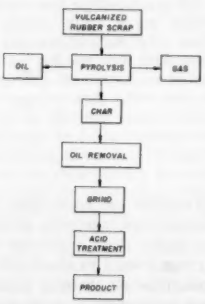
Process for removing CO_2 and H_2S from hot steam-containing gas mixtures using aqueous alkaline scrubbing solutions circulated between a high-pressure absorption stage and a low-pressure regeneration stage where the solution is steam-stripped. More efficient production of stripping steam from the hot feed gas is accomplished by generating a first supply of moderate-pressure steam (e.g. 50 p.s.i.g.) in a water boiler, preferably supplied by aqueous condensate generated in the scrubbing system. The first steam supply is utilized as motive steam in a steam ejector which creates a reduced pressure in a flashing zone supplied with hot, regenerated solution, thereby producing flash steam which is compressed by the motive steam and fed into the regenerator as stripping steam. The hot feed gas leaving the first boiler generates a second supply of lower-pressure steam by indirect heat exchange with regenerated scrubbing solution which second source of steam is fed directly to the regenerator as stripping steam. This system provides increased overall recovery of stripping steam from the hot, steam-containing feed gas, thereby reducing outside steam requirements.

3,823,223
RUBBER-REINFORCING AGENT
John W. Liska, Cuyahoga Falls, and Joseph A. Beckman, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio
Application June 5, 1972, Ser. No. 259,435, now Patent No. 3,772,242, which is a division of application Ser. No. 151,524, June 9, 1971, which in turn is a continuation of application Ser. No. 769,571, Oct. 22, 1968, both now abandoned. Divided and this application June 25, 1973, Ser. No. 373,067
Int. Cl. C08c *11/18;* **C10b** *51/00*
U.S. Cl. 423—445 **2 Claims**



Scrap synthetic rubber is destructively distilled to produce a char. This char, when ground, is used in the reinforcement of rubbers.

3,823,224
PRODUCTION OF A CHAR REINFORCING AGENT FROM PYROLYZED SCRAP-RUBBER
Joseph R. Laman and Edward Leo Kay, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio
Filed Mar. 20, 1972, Ser. No. 236,288
Int. Cl. C01b *31/08*
U.S. Cl. 423—449 **3 Claims**



The invention relates to a rubber reinforcing agent derived from vulcanized scrap rubber. The scrap rubber is charred, treated for removal of oil, ground and then treated with acid to remove metal compounds. The product has been found to be a very satisfactory rubber-reinforcing agent.

3,823,225

REMOVAL OF AVAILABLE CHLORINE FROM ALKALI METAL CHLORATE-CHLORIDE SOLUTION AND PRODUCTION OF CHLORINE DIOXIDE FROM SAID SOLUTION

Ernest H. Sprague, Augusta, Ga., assignor to Olin Corporation

No Drawing. Filed Oct. 19, 1972, Ser. No. 298,882
Int. Cl. C01b *11/02, 11/14;* C01d *3/04*
U.S. Cl. 423—478 14 Claims

A method for reducing the free chlorine in aqueous solutions containing alkali metal chlorate and alkali metal chloride by the addition of a small but effective amount of a hydrazine compound. The resulting treated solution, after adjusting the molar ratio of alkali metal chlorate to alkali metal chloride, is useful as a reactant in the generation of chlorine dioxide useful as a bleaching agent in the paper industry.

3,823,226

PREPARATION OF ALUMINUM HYDRIDE COMPOSITIONS

Frank M. Brower, Midland, Barbara H. Phillips, Freeland, Norman E. Matzek, Midland, Arthur L. Daniels, Coleman, and Donald F. Musinski, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 8, 1962, Ser. No. 179,510
Int. Cl. B01j *17/00;* C01b *6/00*
U.S. Cl. 423—645 20 Claims

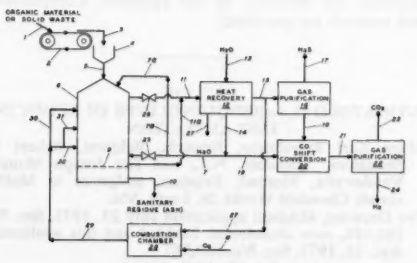
11. In a process for the preparation of an aluminum hydride wherein the aluminum hydride is prepared from an aluminum hydride etherate by desolvating the etherate, the step of stabilizing the aluminum hydride from decomposition to its elements, which comprises intermixing in an inert atmosphere the aluminum hydride with a complex hydride selected from the group consisting of lithium aluminum hydride, sodium aluminum hydride, sodium borohydride, lithium borohydride and mixtures thereof, in an amount of at least 1/10 mole of the complex hydride per mole of the aluminum hydride, heating the resulting mixture at a temperature in the range of 40° to 140° C. for at least ¼ hour to stabilize the aluminum hydride from decomposition to its elements and separating the stabilized aluminum hydride from the complex hydride.

3,823,227

HYDROGEN MANUFACTURE

Robert J. White, Pinole, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Original application May 20, 1970, Ser. No. 39,116. Divided and this application Nov. 24, 1972, Ser. No. 309,299
Int. Cl. C01b *1/16, 2/06, 1/02*
U.S. Cl. 423—655 2 Claims



A process for producing synthesis gas which comprises: (a) feeding an organic feed material, containing hydrogen and at least ten weight percent oxygen and containing less than five weight percent sulfur, to a reaction zone, (b) feeding steam to the reaction zone, and (c) contacting the steam with the organic feed material in the reaction zone at a temperature between about 800 and 1600° F. Preferably the feed material is solid waste material, most preferably solid municipal waste.

3,823,228

TGE VIRUS VACCINE

Deam H. Ferris, Greenport, N.Y., and Angel S. Arambulo, Chicago, Ill., assignors to University of Illinois Foundation, Urbana, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 184,910, Sept. 29, 1971. This application Aug. 30, 1972, Ser. No. 285,036
Int. Cl. A61j *3/07;* C12k *1/08*
U.S. Cl. 424—35 10 Claims

Oral dosage form of villiarly effective biologicals for administration to animals comprises enteric-coated particles having controlled maximum size. Vaccine for protection of swine against TGE comprises enterically coated particles, less than about 2.0 mm. in diameter, containing attenuated TGE virus vaccine.

3,823,229

INHALATION COMPOSITIONS CONTAINING 7-(β-HYDROXYPROPYL)-THEOPHYLLINE

Gustaf L. Jederstrom, Bjorklinge, Sweden, assignor to Pharmacia AB, Uppsala, Sweden

No Drawing. Filed Nov. 16, 1971, Ser. No. 199,362
Claims priority, application Sweden, Nov. 20, 1970, 15,711/70
Int. Cl. A61k *13/00*
U.S. Cl. 424—45 1 Claim

The invention relates to self-propelling aerosol compositions containing a solution of 7-(β-hydroxypropyl)-theophylline.

3,823,230

ALDEHYDE CONDENSATION PRODUCTS OF FLUOROALIPHATIC PHENOLS IN SKIN PROTECTIVE COMPOSITIONS

Leland S. Endres, San Luis Obispo, Calif., and Leo F. Gehlhoff, Village of Lake Elmo, and Dallas D. Zimmerman, Village of Shoreview, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Original application Oct. 29, 1970, Ser. No. 85,278, now abandoned. Divided and this application Sept. 21, 1971, Ser. No. 182,528
Int. Cl. A61k *27/00*
U.S. Cl. 424—82 9 Claims

Condensation products of aldehydes and fluoroaliphatic phenols are substantive to wool, synthetic polyamides, leather and skin, the compositions preferably being extended with a suitable pharmaceutical medium. The condensation products are useful for the preparation of compositions that render such materials oil and water repellent.

3,823,231

HAIR BLEACH CONTAINING A THIOCYANATE CATALYST

Frank P. Bucaria, 1952 Sweet Home Road, Williamsville, N.Y. 14221

No Drawing. Filed Apr. 20, 1971, Ser. No. 135,759
Int. Cl. A61k *7/12*
U.S. Cl. 424—62 7 Claims

A bleach for human hair, in aqueous emulsion form, which safely and quickly bleaches the hair, includes, as active bleaching constituents, a mixture of pre-compounds, e.g., sodium persulfate, ammonium persulfate, sodium carbonate peroxide, and hydrogen peroxide, a catalyst for aiding the release of oxygen from such materials, e.g., ammonium thiocyanate, water and an emulsifying material, e.g., ammonium oleate. The bleaching composition is prepared shortly before use by quickly combining at least partially pre-mixed portions thereof and is applied promptly to the hair to be bleached, on

which the composition forms a foam of limited height and of a sufficient viscosity to hold in contact with the hair the bleaching constituents and oxygen released.

3,823,232

WAVING OR UNCURLING HAIR WITH A COMPOSITION CONTAINING AN AMINO ACID ALKALI METAL CARBONATE

Jean Galerne, Paris, France, assignor to Eugene-Gallia, Societe Anonyme, Paris, France

No Drawing. Filed Mar. 1, 1971, Ser. No. 119,921
Claims priority, application France, June 5, 1970, 7020797; Nov. 2, 1970, 7039392
Int. Cl. A61k *7/10*
U.S. Cl. 424—72 **5 Claims**

A composition for permanently curling, waving or uncurling hair and keratinic fibres containing thioglycolic or thiolactic acid, or an ammonium salt or an alkali metal salt of these acids, and also an alkalizing gent, which includes as the alkalizing agent the carbonate of an alkali metal salt of an amino acid instead of ammonia, said carbonate being free of the various inconveniences characterizing the use of ammonia during the application of said products.

3,823,233

REMOVAL OF NITROGENOUS WASTE PRODUCTS WITH POLYALDEHYDES

Carmelo Giordano, Renato Esposito, and Giacomino Randazzo, Naples, Italy, assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Filed Jan. 6, 1971, Ser. No. 104,514
Claims priority, application Italy, Sept. 3, 1970, 53,194/70
Int. Cl. A61k *27/00*
U.S. Cl. 424—180 **10 Claims**

A process for preparing pure polyaldehydes by oxidation of polysaccharides such as starch. Said polyaldehydes are able to trap in vivo urea, ammonia and some other substance that generally increase in patients with renal or hepatic failure, and therefore can be used for the treatment of renal and hepatic failure.

3,823,234

MONOHYDRATED PAPAVERINE ADENOSINE-5'-MONOPHOSPHATE MEDICAMENT FOR TREATMENT OF CARDIOVASCULAR DISORDERS

Roland Yves Mauvernay, Riom, France, assignor to Centre Europeen de Recherches Mauvernay C.E.R.M., Riom, France

No Drawing. Filed Mar. 9, 1972, Ser. No. 233,298
Claims priority, application France, Mar. 16, 1971, 7109044
Int. Cl. A61k *27/00*
U.S. Cl. 424—180 **9 Claims**

As a medicament for treating cardiovascular disorders there is provided as the active substance, monohydrated papaverine adenosine-5'-monophosphate. The active substance is particularly suitable for the treatment of various disorders due to circulatory insufficiency of cerebal, peripheral or coronary localization.

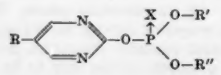
3,823,235

CERTAIN O-(2-PYRIMIDYL) PHOSPHATES AND THEIR USE AS INSECTICIDES

Albert Howard Haubein, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Original application Nov. 12, 1971, Ser. No. 198,415, now Patent No. 3,741,968. Divided and this application Feb. 26, 1973, Ser. No. 336,152
Int. Cl. A01n *9/36*
U.S. Cl. 424—200 **5 Claims**

Disclosed are compounds of the formula:



in which R is selected from the group consisting of H, F, Cl, Br and I, R' and R'' are selected from the group consisting of CH_3 and C_2H_5, and X is selected from the group consisting of O and S. These compounds have utility as insecticides.

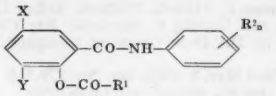
3,823,236

2-ACYLOXYBENZOIC ACID ANILIDE FUNGICIDAL AND BACTERICIDAL AGENTS

Karl Heinz Büchel, Wuppertal-Elberfeld, Ferdinand Grewe, Burscheid, and Hans Scheinpflug, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 21, 1972, Ser. No. 246,442
Claims priority, application Germany, Apr. 28, 1971, P 21 20 861.7
Int. Cl. A01n *9/20, 9/24*
U.S. Cl. 424—230 **11 Claims**

Fungicidal and bactericidal compositions containing, and methods of combating fungi and bacteria using, a 2-acyloxybenzoic acid anilide of the general formula



(I)

in which

R^1 is alkyl or alkoxy of 1 to 6 carbon atoms,

X and Y each independently is chlorine, bromine or tertiary butyl, or X is hydrogen provided that Y is nitro, or Y is hydrogen provided that X is chlorine and R^1 is alkoxy or 1 to 4 carbon atoms,

n is 1, 2, 3, or 4, and

R^2 is lower alkyl, halo-lower alkyl, halogen, nitro, lower alkoxycarbonyloxy, lower alkoxy or lower alkymercapto.

3,823,237

INCREASING HEN EGGSHELL THICKNESS WITH 25 - HYDROXYCHOLECALCIFEROL COMPOUNDS

Fred Richard Frank, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation of abandoned application Ser. No. 210,232, Dec. 20, 1971. This application Jan. 17, 1972, Ser. No. 218.480
Int. Cl. A61k *27/00*
U.S. Cl. 424—236 **4 Claims**

The administration of 25-hydroxycholecalciferol, 21,25-dihydroxycholecalciferol, 25,26-dihydroxycholecalciferol, 1,25-dihydroxycholecalciferol, 25-hydroxydihydrotachysterol$_3$, 25-hydroxyergocalciferol and their acylates to hens increases the thickness of the eggshells. Compositions and methods are provided.

3,823,238

S-TRIAZOLO-[3,4-a]ISOQUINOLINES IN REDUCING INFLAMMATION

Hans Karl Reimlinger, Brussels, Belgium, Robert W. Shanahan, Allendale, N.J., and Jan Joseph Maurice Vandewalle, Mortsel, Belgium, assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

No Drawing. Original application July 27, 1971, Ser. No. 166,626, now abandoned. Divided and this application Apr. 23, 1973, Ser. No. 353,787
Int. Cl. A61k *27/00*
U.S. Cl. 424—258 **1 Claim**

Novel *s*-triazolo-[3,4-*a*]-isoquinoline compounds are prepared by methods analogous to known methods and exhibit anti-inflammatory activity.

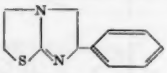
3,823,239

ANTI-BACTERIAL PROCESS USING TETRAMISOLE

Roland Thomas Victor Fox, Wokingham, John Roger Hadfield, Yateley, and Peter Doyle, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Sept. 1, 1972, Ser. No. 285,809
Claims priority, application Great Britain, Sept. 30, 1971, 45,562/71
Int. Cl. A01n *9/12, 9/20*
U.S. Cl. 424—270 3 Claims

This invention relates to processes for combating plant bacterial diseases using a compound having the formula:



or acid-addition salts thereof.

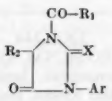
3,823,240

FUNGICIDAL HYDANTOIN DERIVATIVES

Michel Sauli, Paris, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Original application Oct. 5, 1971, Ser. No. 186,772, now Patent No. 3,755,350. Divided and this application Jan. 18, 1973, Ser. No. 324,788
Claims priority, application France, Oct. 6, 1970, 7036084; Aug. 6, 1971, 7128896
Int. Cl. A01n *9/22*
U.S. Cl. 424—273 9 Claims

The hydantoin derivatives of the formula:



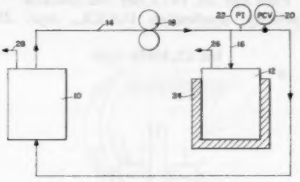
wherein Ar represents phenyl, or phenyl carrying substituents selected from halogen, alkyl, alkoxy and trifluoromethyl, R_1 represents alkoxy or a grouping $—NR_3R_4$, in which R_3 and R_4 represent hydrogen, alkyl or alkenyl, R_2 represents hydrogen or alkyl, and X represents oxygen or sulphur, possess fungicidal properties.

3,823,241

CRYOGENIC AROMATIZATION OF INSTANT COFFEE

Jayantilal Mohanbhai Patel, Cincinnati, and Richard Francis Durchholz, Loveland, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of abandoned application Ser. No. 74,074, Sept. 21, 1970. This application Aug. 17, 1972, Ser. No. 281,569
Int. Cl. A23f *1/04*
U.S. Cl. 426—386 17 Claims



A method of transferring the aroma of roast and ground coffee to a coffee aroma absorbant such as an instant coffee to which coffee oil has been added. The method comprises chilling the absorbant to a temperature of at least —40° F. and placing the chilled absorbant in communication with a zone charged with roast and ground coffee held at a higher vapor pressure than the vapor pressure of the chilled absorbant. The aroma essence of the roast and ground coffee is transferred to the chilled absorbant and retained thereon.

ELECTRICAL

3,823,242
ELECTROSLAG REMELTING PROCESS

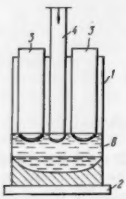
Boris Evgenievich Paton, ulitsa Kotsjubinskogo, 11, Kv. 23; Boris Izrailevich Medovar, bulvar Lesi Ukrainki, 2, kv. 8; Vladimir Prokhorovich Andreev, prospekt Nauki, 99, kv. 13; Georgy Alexandrovich Boiko, ulitsa Vladimiro-Lybedskaya, 16, kv. 106; July Georgievich Emelyanenko, ulitsa Darvina, 5, kv. 5, all of Kiev; Jury Vasilievich Sobolev, ulitsa Novgorodskaya, 16/2, kv. 13; Adolf Ivanovich Shavrin, ulitsa Lenina, 45, kv. 17, both of Kolpino Leningradskoi oblasti; Evgeny Tikhonovich Dolbenko, ulitsa Garibaldi, 10, kv. 3, and Viktor Vasilievich Chernykh, ulitsa Belomorskaya, 18, korpus 4, kv. 51, both of Moscow, all of U.S.S.R.

Filed Apr. 25, 1973, Ser. No. 354,436

Claims priority, application U.S.S.R., Apr. 29, 1972, 1778702

Int. Cl. H05b *3/60*

U.S. Cl. 13—9 **5 Claims**



An electroslag remelting process in in which fused consumable electrodes are fed into a mould, the electrodes being mounted movably and stationary with respect to the mould and connected to a power source according to a bifilar circuit. The electrodes are arranged in the mould space in parallel rows alternating in such a manner that one row is composed of the electrodes coupled to one leadout of the power source and the other of those coupled to another leadout thereof.

3,823,243
APPARATUS FOR LIMITING MAST TRAVEL IN ELECTRIC FURNACE SYSTEM

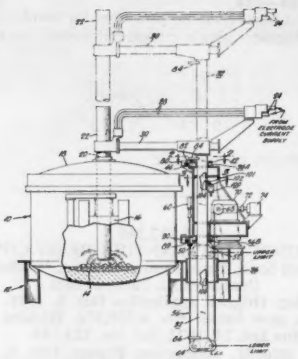
Martin H. Vitale, and Joseph D. Gricol, both of Wilton, Iowa, assignors to Phoenix Steel Corporation, Claymont, Del.

Filed Oct. 29, 1973, Ser. No. 410,567

Int. Cl. H05b *7/12*

U.S. Cl. 13—13 **7 Claims**

In electric furnace systems, the electrode for supplying current to the furnace is normally moved up and down by a reciprocating mast mounted by upper and lower mast-guiding means fitting closely about the mast, the reciprocating motion being provided by suitable motor means. To prevent dangerous up-and-down extremes of travel of the mast, there is employed a normally-open type of switch means positioned between the upper and lower mast-guiding means so as to be held closed by a surface of the mast during execution by the mast of its desired maximum length of travel. The mast surface is configured to permit the switch means to open when the mast moves beyond the desired maximum length of travel, and this opening of the switch is caused to deactuate the motor means. Preferably the configuring of the mast surface comprises providing a recess therein so positioned that when the switch arm, which normally rides along the exterior of the mast, reaches the recess, it moves into the recess to permit the switch to open and discontinue the motor operation. The position of the switch is preferably on the side of the mast away from the furnace means and within an at-least-partially protected region. Other arrangements employ more than one recess and/or switch, some of which may be used for normal



arrest of the extreme motion of the mast and others of which may be used as back-up safety devices in case the normal mast-arresting arrangement does not function.

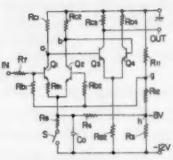
3,823,244
AUDIO SIGNAL KEYER

Yasuo Nagahama, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Aug. 15, 1973, Ser. No. 388,621

Int. Cl. G10h *1/00*

U.S. Cl. 84—1.01 **8 Claims**



An audio signal keyer suitable for use in an electronic musical instrument comprises two differential amplifiers in cascaded connection. The first differential amplifier has a first input supplied with an audio signal to be keyed, a second input supplied with no AC-signal and a common end supplied with a keying voltage, whereby the first output gives out a keyed signal consisting of an AC-component building up with the determined envelope and a DC-component building up in accordance with the keying voltage variation and the second output gives out only a DC-component of the above-mentioned variation. The second differential amplifier has one input being supplied with the above-mentioned keyed signal of the AC- and DC-components appearing at the first output of the first differential amplifier and the other input being supplied with the DC-component appearing at the second output of the first differential amplifier. Thereby, at one of the outputs of the second differential amplifier is obtained a keyed audio signal with only the AC-component building up the desired amplitude with the determined envelope, which is free

from the unwanted DC variation and click noise occurring at the beginning of the tone sounding.

3,823,245

CENTRALIZED ELECTRICAL ARRANGEMENT FOR MUSICAL PERFORMANCE BY GROUPS

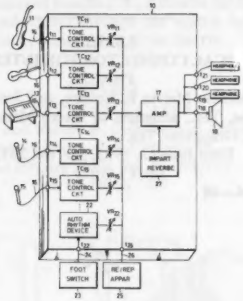
Kazohiko Suzuki, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki, Hamamatsu-shi, Japan

Filed Feb. 7, 1973, Ser. No. 330,287

Claims priority, application Japan, Feb. 9, 1972, 47-17155; Feb. 9, 1972, 47-17156

Int. Cl. G10h *1/00*

U.S. Cl. 84—1.04 **2 Claims**



Means for controlling the tones and the volumes of the sounds to be reproduced from electrical signals deliverd by various electronic and/or electrical musical instruments as well as microphones are arranged centrally within a single housing such as a cabinet. The output signals from the aforesaid means are commonly amplified by an amplifier circuit also provided within the housing and are then translated into audible sounds by a loudspeaker positioned outside of the housing. In another embodiment of the invention the housing is served by the console of an electronic organ, in which case the amplifier circuit of the electronic organ itself is utilized for amplification of the signals from the other instruments in use.

3,823,246

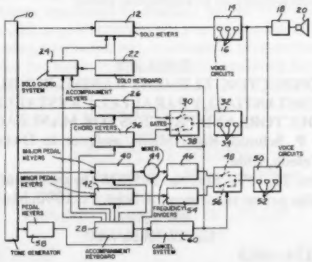
CHORD PLAYING ORGAN INCLUDING A CIRCUIT ARRANGEMENT FOR ADDING FILL-IN NOTES TO THE SOLO PART

Richard Hebeisen, and Patrick King Doane, both of Jasper, Ind., assignors to Kimball Piano & Organ, Electronic Division, Jasper, Ind.

Filed Apr. 11, 1973, Ser. No. 349,987

Int. Cl. G10h *1/00*

U.S. Cl. 84—1.17 **21 Claims**



An electronic organ which is selectively adjustable between conventional playing and chord playing modes and in which chord playing mode at least certain ones of the keys of the accompaniment manual key groups of notes which make up chords. When the organ is adjusted into chord playing mode, the depressing of a single chord playing key and a single solo key will actuate circuitry that causes added notes to be sounded inthe solo and which are musically related to the solo note being played and to the chord being played and which are preferably within about an octave range of the solo note being played.

3,823,247

CAPOTASTO

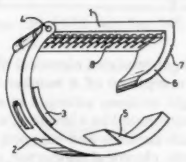
Herbert Bauerfeind, 8521 Brauningshof, Germany

Filed Apr. 18, 1973, Ser. No. 352,326

Claims priority, application Germany, June 30, 1972, 2232031

Int. Cl. G10d *3/00*

U.S. Cl. 84—318 **5 Claims**



A capotasto or capo for clamping to the finger board of a stringed musical instrument to alter its basic pitch, in which the pressure bar of the capo has a comb with close spaced teeth to press on the strings.

3,823,248

BUS INCORPORATING CURRENT LIMITING REACTANCE

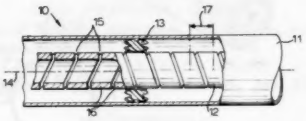
Donald M. Christie, Guelph, Ontario; Ronald W. Lye, and Robert H. Rehder, both of Peterborough, Ontario, all of Canada, assignors to Canadian General Electric Company Limited, Toronto, Ontario, Canada

Filed Feb. 28, 1973, Ser. No. 336,795

Claims priority, application Canada, July 13, 1972, 146995

Int. Cl. H02g *5/06;* **H02h** *9/02, 7/22*

U.S. Cl. 174—16 B **5 Claims**



A bus duct run, consisting of a rigid tubular conductor supported inside a rigid enclosure, has a current limiting reactance incorporated in the conductor. The reactance is obtained from a portion of the conductor formed into a helix with spaced-apart turns. The helix may be a tubular conductor cut helically or a conductor wound helically.

3,823,249
COMPRESSED-GAS INSULATED HIGH-VOLTAGE CONDUCTOR ASSEMBLY COMPOSED OF A SERIES OF RIGID RECTILINEAR SECTIONS WITH INTERMEDIATE FLEXIBLE CONNECTING SECTIONS

Carl Dieter Floessel, Fislisbach; Klaus Floessel, Wettingen, and Adolf Eidinger, Nussbaumen, all of Switzerland, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

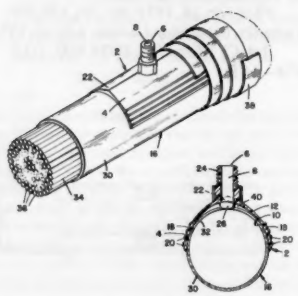
Filed July 16, 1973, Ser. No. 379,400
Claims priority, application Switzerland, Aug. 23, 1972, 12402/72
Int. Cl. H02g *15/08*
U.S. Cl. 174—21 C **4 Claims**

A compressed-gas-insulated electrical high-voltage conductor assembly is comprised of a number of pressurized gas-filled rigid straight sections arranged in end-to-end relation. Each section is constituted by a length of a rigid metallic tubular member which encloses and supports centrally therein a rigid portion of the electrical conductor, and these rigid conductor-enclosing sections are joined together by means of short flexible sections of the tubular enclosing member and a corresponding flexible portion of the conductor thereby to enable the connected-together rigid sections to be bent through an angle of substantially 180° to facilitate transport from the fabrication point to a remote location for on-site installation.

3,823,250
METHOD AND APPARATUS FOR CONSTRUCTING INSULATED CABLE PRESSURE BLOCKS

Richard L. De Monsy, Encino, and Norman K. Hankins, Northridge, both of Calif., assignors to Hexcel Corporation, Dublin, Calif.

Filed June 18, 1973, Ser. No. 371,080
Int. Cl. H02g *15/20;* **H01b** *7/28, 13/00*
U.S. Cl. 174—23 R **16 Claims**

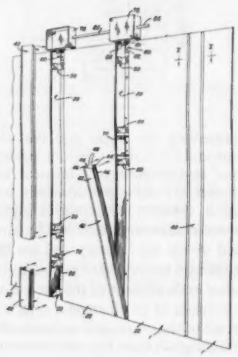


A sheath surrounding a multi-wire cable is opened to expose the cable core and a flexible cover sheet is placed over the resulting cut-out to cover the cut-out. The sheet is biased against the cut-out by taping it thereto and it includes an inlet port communicating the exterior of the cable with the cut-out in the sheath. An interior side of the sheet is concavely curved and has intermittent protrusions which space the sheet from the core to define passageways which communicate with the port opening so that block forming material, such as self-setting plastic can be injected into the passageways and hence into and around the multi-strung cable core. After the plastic sets, it forms a gas tight barrier or pressure block within the cable. The flattened cover sheet has a generally rectangular configuration and side dimensions of at least about 4 inches for coverage of a cut-out having side lengths of at least about 3 inches. The longitudinal center line of the sheet (parallel to the cable axis) has an increased cross-section as compared with remaining portions of the sheet to resist center flattening of the sheet when biased against the cable to enhance the formation of passageways between the concave sheet side and the cable core and to resist collapse of the sheet and a resulting destruction of the passageways.

3,823,251
ELECTRICAL CONNECTOR FOR INTERIOR WALL PANELS

Gary Heithecker; Melvin R. Loseke, and Joe Ferguson, all of Grapevine, Tex., assignors to Mesco Metal Buildings Corporation, Grapevine, Tex.

Filed June 12, 1972, Ser. No. 261,743
Int. Cl. H02g *3/28*
U.S. Cl. 174—48 **8 Claims**



An interior wall panel for buildings wherein a sheet has spaced hollow channels formed therein to receive electrical wires, switches and outlet box receptacles. Resilient clips are secured in each channel adjacent opposite ends thereof and adjacent opposite sides of switches and electrical outlet boxes disposed therein. Elongated filler strips have projections thereon disconnectably secured to the clips, said filler strips bridging the channel in the sheet material and abutting with electrical switches and outlet boxes such that surfaces of a sheet, filler strip, electrical switch covers and outlet box covers substantially lie in a common plane.

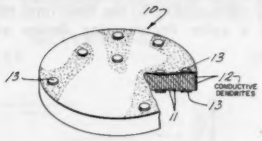
3,823,252
CONDUCTING ELEMENT HAVING BUNDLED SUBSTANTIALLY PARALLEL CRYSTALLINE CONDUCTORS AND PROCESS FOR MANUFACTURE

Anthony P. Schmid, Riga, Mich., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Oct. 26, 1972, Ser. No. 301,235The portion of the term of this patent subsequent to Sept. 11, 1990, has been disclaimed.
Int. Cl. H05k *1/02*
U.S. Cl. 174—68.5 **14 Claims**

Disclosed is a method for forming an array of conductive crystalline dendrites of reduced rutile in a glass-ceramic insulating matrix by crystallizing certain compositions containing

titania and silica in a non-oxidizing atmosphere under the influence of a thermal gradient to form a parallel array of conductive reduced rutile dendrites. Several of such dendrites are

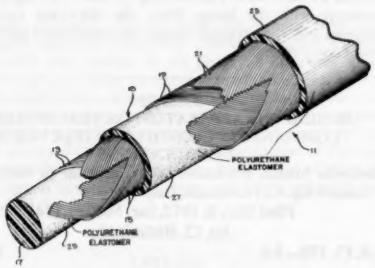


joined to form a coaxial bundle (i.e., a bundle having substantially parallel conductors) through the matrix by means of conductive caps on opposing faces of the matrix.

3,823,253
STRETCHABLE CABLE

Jack E. Walters, and Robert B. Cole, both of Richmond, Ind., assignors to Belden Corporation, Chicago, Ill.

Filed July 10, 1970, Ser. No. 53,873
Int. Cl. H01b *7/06*
U.S. Cl. 174—69 **2 Claims**



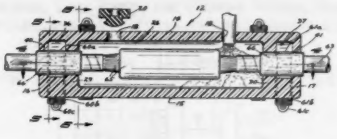
An elongated, uncoiled stretchable and retractable cable is formed with the capability of stretching several times its relaxed length and returning to its relaxed length without being damaged by having inner and outer conductors helically wrapped with opposite lays or serves which may move relative to each other without becoming interlocked as in a braided construction. More specifically, the inner one of the conductors is helically wrapped in one direction about and along a central, elastomeric core and the outer conductor is helically wrapped along and circumferentially about the inner conductor but in an opposite direction. In a similar manner, an outer conductor shield for a coaxial cable may be formed of conductors oppositely laid and helically wrapped about an elastomeric layer separating the shield conductors from the interior conductors. Good resistance to ambient and environmental conditions as well as good stretchability and retractability are provided by using thermoplastic, elastomeric polyurethane as the material for the inner central core, the insulating layer and an outer protective sheath.

3,823,254
CABLE SPLICE HOUSING

Robert L. Smith, Minnetonka, Minn., assignor to Roart Plastics, Inc., Hopkins, Minn.

Filed June 18, 1973, Ser. No. 371,189
Int. Cl. H02g *15/08*
U.S. Cl. 174—92 **6 Claims**

A cable splice housing consisting of a separable housing having end wall openings and a central cavity therein, and an internal annular groove adjacent each end of said housing, each of said grooves having openings through said housing and a clamp member disposed through said openings into each of

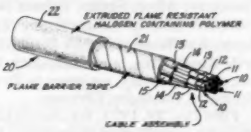


said grooves for securing a cable therein, said clamp members being secured outwardly of said housing, and a sealant within said housing.

3,823,255
FLAME AND RADIATION RESISTANT CABLE

Francis E. La Gase, Utica, and Stevan Jovanovitch, Rome, both of N.Y., assignors to Cyprus Mines Corporation, Los Angeles, Calif.

Filed Apr. 20, 1972, Ser. No. 245,772
Int. Cl. H01b *7/02*
U.S. Cl. 174—113 R **5 Claims**



A flame retardant, radiation resistant insulated conductor, either in single conductor form or having a plurality of insulated conductor assemblies each comprised of an electrical conductor core, a flexible flame-resistant barrier layer of an inorganic electrical insulating material which surrounds the core, an electrical insulating layer of a polymer material which surrounds the barrier layer, a second flame retardant barrier layer of an inorganic electrical insulating material which surrounds the polymer insulating layer, and a second electrical insulating layer of a halogen containing polymer which surrounds the second barrier layer and jackets the insulated conductor. The plurality of insulated conductors are wrapped together, preferably twisted together, within a flame retardant barrier shell of an inorganic electrical insulating material. The shell is jacketed with a flexible flame retardant, electrical insulator covering of a halogen containing polymer.

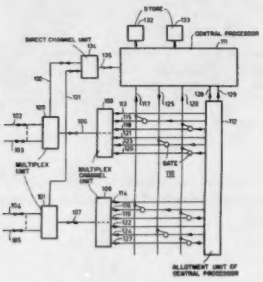
3,823,256
DATA SWITCHING SYSTEM

Rudolph Louis Wittebol, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 2, 1973, Ser. No. 320,169
Claims priority, application Netherlands, Jan. 11, 1972, 7200352
Int. Cl. H04l *5/24*
U.S. Cl. 178—3 **4 Claims**

A description is given of a data switching system for switching direct connections between TELEX lines by way of a central processor. The system configuration of a message switching system is used as a basis. The communication lines are connected to communication units which send request signals to the central processor when a character is received or transmitted. Registers of the central store are permanently associated with the communication lines. In the register of the receive line the address of the register of the send line is

stored. The latter register comprises a number of character locations for storing characters. In reaction to the request



signals, the central processor transfers the characters from the communication unit to the register of the send line or conversely.

3,823,257

METHOD AND APPARATUS FOR GENERATING A MULTI-COLORED PATTERN

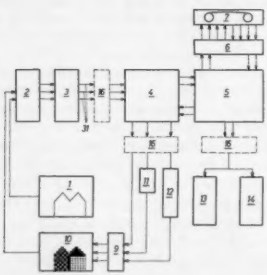
Reinhold Oelmayer; Albert Seelos; Helmut Seitz, all of Kaufbeuren; Walter Ludvig Schnattinger, Eriskirch-Schlatt; Heinz Mayer, Kaufbeuren; Joseph Duell, Oberbeuren; Wilhelm Hertl, Kaufbeuren, and Hans-Jorg Koch, Stuttgart-Bonlanden, all of Germany, assignors to Firma Franz Morat GmbH, Stuttgart-Vaihingen, Germany

Filed Dec. 29, 1971, Ser. No. 213,507

Claims priority, application Germany, Dec. 30, 1970, 2064387; Dec. 30, 1970, 7048125[U]

Int. Cl. H04n *9/02*

U.S. Cl. 178—5.2 R **29 Claims**



A method and apparatus for generating a multi-colored pattern comprising the steps of: A. electro-optically scanning a multi-colored drawing; B. driving electrical signals characteristic of the diverse colors; C. permanently storing said signals in a storage device; D. reading out said signals from said storage device; and then E. feeding the read-out signals to a printer whereby there is printed a pattern corresponding to the scanned drawing.

3,823,258

COLOR FILM SCANNER WITH SINGLE PICK-UP TUBE

Otto Freudenschuss, Vienna, Austria, assignor to Karl Vockenhuber and Raimund Hauser, both of Vienna, Austria

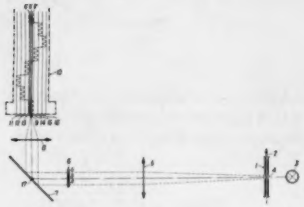
Filed Oct. 18, 1972, Ser. No. 298,612

Claims priority, application Austria, Oct. 19, 1971, 9047/71

Int. Cl. H04n *9/06*

U.S. Cl. 178—5.2 D **6 Claims**

A method of picking up an image of an object onto a pick-up device, which image is movable relatively to the pick-up device, whereby the image is transformed into television signals and the signals are transmitted into different color channels. The method comprises in combination the steps of: decomposing the image optically into lines to obtain light beams of the image in line shape; the light beams project successively corresonding to the lines onto the pick-up device through a color decomposing device extending in the



direction of the lines; the pick-up device is received in the direction of the lines and thereby sweeps in transverse direction to the direction of the lines with a sweeping amplitude corresponding to the height of the image line on the pick-up device, thereby generating the television signals in accordance with the image lines; the television signals are chopped and, the chopped signals are transmitted into the different color channels.

3,823,259

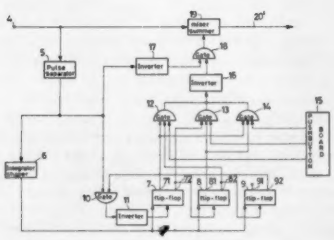
METHOD AND APPARATUS FOR TRANSFERRING COMMANDS IN CLOSED LOOP TELEVISION INSTALLATIONS

Lamberto Mazza, Pordenone, Italy, assignor to Industrie A. Zanussi S.p.A., Pordenone, Italy

Filed Mar. 6, 1972, Ser. No. 232,114

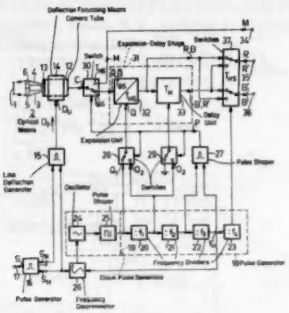
Int. Cl. H04n *7/18*

U.S. Cl. 178—5.6 **9 Claims**



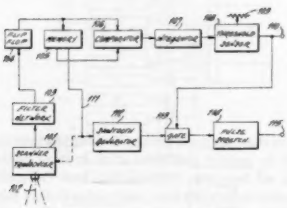
A TV-assisted intercommunication system for apartment buildings is disclosed, in which each receiving site is preliminarily associated with a predetermined pulse of a set of line synchronizing pulses as contained in a transmitted video signal. At every command as impressed from a takeup site, an encoded pulse associated with the preselected receiving site is sent, whereafter, in the preselected receiving site, the encoded pulse is recognized by comparing it with the pulses of the transmitted video signal, the result being that a call signal is produced just at the preselected receiving site (e.g., an apartment of the building) and not elsewhere. The method and the circuitry of the invention can be applied to any closed-loop television system.

3,823,260
COLOUR TELEVISION CAMERA
Willem Van den Bussche, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 27, 1972, Ser. No. 309,708
Claims priority, application Netherlands, Dec. 4, 1971, 71.16690
Int. Cl. H04n 9/06
U.S. Cl. 178—5.4 ST 11 Claims



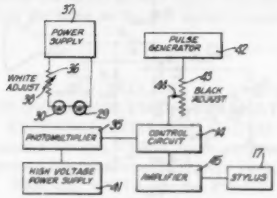
A colour television camera using one camera tube onto which three separate differently coloured images are projected beside one another in the line scan direction. Compressed images are made on either side of the normal central image through compression optical systems in the line scan direction. The central image is analysed during each line period in the standard line scan period and a compressed image is analysed one line every two lines in part of the standard line blanking period. After signal expansion of the compressed signals simultaneous image signals are obtained with the aid of a delay unit.

3,823,261
IMAGE MOTION AND CHANGE TRANSDUCERS AND SYSTEMS CONTROLLED THEREBY
Emil J. Bolsey, White Plains, N.Y. 10606
Continuation-in-part of Ser. No. 778,870, May 27, 1968, Pat. No. 3,617,016, which is a continuation-in-part of Ser. No. 118,194, June 19, 1961, abandoned. This application Oct. 29, 1971, Ser. No. 193,950
Int. Cl. H04n 3/00
U.S. Cl. 178—6.8 9 Claims



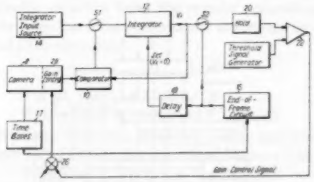
An image comparator includes means for scanning a selected area of an arbitrary image and for converting the video pattern into analog video electrical signals which are treated to emphasize their intermediate frequency range components and converted into binary signals for comparison with a signal representative of a reference image.

3,823,262
FACSIMILE RECORDER WITH COMPENSATION OF THE ELECTROSENSITIVE BLANK NONLINEAR APPLIED VOLTAGE-BURN CHARACTERISTIC
Max S. Adams, Long Beach, and Gunther Wicher, Stanton, both of Calif., assignors to Coloroptics, Inc., Stanton, Calif.
Filed Oct. 24, 1972, Ser. No. 299,872
Int. Cl. H04n 1/22; G01d 15/06
U.S. Cl. 178—6.6 R 2 Claims



A facsimile recorder including a control circuit for amplitude modulating a train of pulses with a voltage signal generated by a photoscanner as it scans an image on a reference document, the control circuit including circuitry for modifying the amplitude of the voltage signal with changes in the intensity of light reflected from the image to compensate for a nonlinear applied voltage-burn characteristic of an electrosensitive blank to which the amplitude modulated pulse train is applied to produce a facsimile of the image.

3,823,263
CAMERA TUBE GAIN CONTROL CIRCUIT
John R. Guppy, Hitchin, England, assignor to British Aircraft Corporation, London, England
Filed Jan. 26, 1973, Ser. No. 327,203
Claims priority, application Great Britain, Jan. 27, 1972, 3953/72
Int. Cl. H04n 5/34
U.S. Cl. 178—7.2 5 Claims

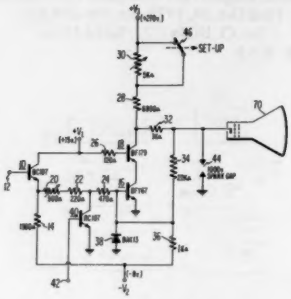


In an electronic camera tube circuit, a gain-control voltage is produced which varies with the level of the video signals corresponding to the background in the viewed scene. An integrator receives a steady input signal as long as the video signal from the camera exceeds the level of the integrator output. The integrator output thus rises to the background level and is sampled and reset periodically, for example at the end of each frame, the sample providing a gain-control voltage.

3,823,264
CASCODE VIDEO OUTPUT FEEDBACK AMPLIFIER
Peter Eduard Haferl, Adliswil, Switzerland, assignor to RCA Corporation, New York, N.Y.
Filed Feb. 16, 1972, Ser. No. 226,800
Claims priority, application Great Britain, Apr., 1971, 11561/71
Int. Cl. H04n 5/48
U.S. Cl. 178—7.5 R 8 Claims

A video output amplifier utilizes two transistors arranged in cascode configuration for driving the cathode electrode of a

color television kinescope. A negative feedback network couples the collector electrode of the output transistor of the cascode configuration to the base electrode of the input



transistor of the pair, and includes an arc current limiting resistor which serially couples the output transistor to the kinescope cathode.

3,823,265

CODE-CONTROLLED TELEPRINTER HAVING A TYPE CYLINDER WHICH CAN BE ADJUSTED BY MEANS OF A STEPPING MOTOR

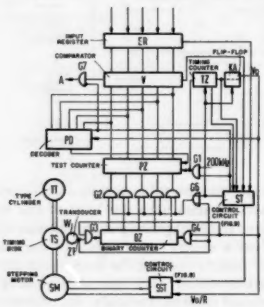
Martin Ludwig, and Hanns Joerg Senger, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Filed Nov. 9, 1972, Ser. No. 305,008

Claims priority, application Germany, Nov. 11, 1971, 2156093

Int. Cl. B41j 1/50

U.S. Cl. 178—34 **3 Claims**



A teleprinter having a type cylinder wherein the instantaneous position of the type cylinder is known through a comparing system which utilizes a binary counter. A synchronizing mark is provided on a timing disc carried for mutual rotation with the type cylinder and is associated with a frequently occurring predetermined character, e.g., a character E, which allows adjustment of the binary counter independently of other adjustments to the code mark associated with the predetermined character by means of a synchronizing pulse as soon as this mark is sensed by an associated sensing element as a printing position or during passage thereof.

3,823,266

SYNCHRONIZATION SYSTEM

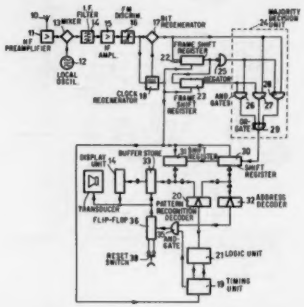
Cornelis Johannes Van Elk, and Albertus Marinus Morrien, both of Hilversum, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed July 14, 1972, Ser. No. 271,832

Claims priority, application Netherlands, July 21, 1971, 7110002

Int. Cl. H04l 7/00

U.S. Cl. 178—69.5 R **2 Claims**



A signal receiver for a radio communication system with transmission of information in sequential frames of a synchronous data signal. A synchronization word is transmitted in each frame. The receiver comprises a frame synchronizer for synchronizing the cycle of a timing unit with the frame of the data signal. The frame synchronization word is applied to the synchronizer indirectly, after having been error corrected in a majority decision unit which combines three bits mutually delayed by a frame interval into one bit.

3,823,267

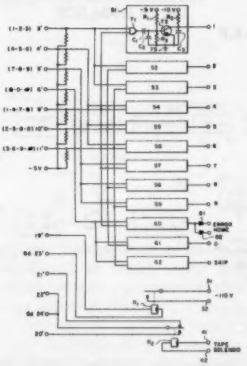
DATA TRANSLATOR AND RECORDING SYSTEM FOR USE WITH TONE GENERATING TELEPHONES

Jonnie Steven Welch, El Paso, Tex., assignor to General Computer Service, Inc., El Paso, Tex.

Filed Aug. 26, 1971, Ser. No. 175,120

Int. Cl. H04m 11/06

U.S. Cl. 179—2 DP **8 Claims**



The data translator and recording system includes a conventional tone generating telephone set, a data set connected to the telephone set, a data recording unit and a translator interconnecting the data set and the data recording unit. Tone

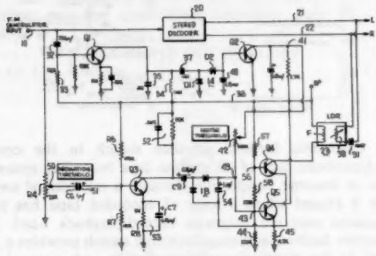
signals manually generated on the telephone set are applied to the data set which converts each of the tone signals to a pair of D.C. signals which are then applied to the translator. The translator responds to each pair of D.C. signals by generating a short D.C. pulse which it applies to the data recording unit. The data recording unit in response to each D.C. pulse records one of the digits 0 through 9.

3,823,268

DYNAMIC STEREO SEPARATION CONTROL

Richard Modafferi, Vestal, N.Y., assignor to McIntosh Laboratory, Inc., Binghamton, N.Y.

Filed June 7, 1972, Ser. No. 260,483
Int. Cl. H04h *5/00*
U.S. Cl. 179—15 BT **14 Claims**



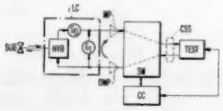
A system for reducing noise in a stereophonic f.m. radio receiving system by dynamically controlling stereo separation in which the two audio channels of an f.m. stereophonic radio receiver are dynamically blended toward and away from the monaural mode progressively and smoothly to an extent determined by amplitude of noise and of modulation signal measured in the receiver.

3,823,269

SPEECH PATH TEST SYSTEM FOR TIME-DIVISION SWITCHING EQUIPMENT

Noriaki Saito, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Tokyo, Japan

Filed July 27, 1972, Ser. No. 275,667
Claims priority, application Japan, Aug. 11, 1971, 46-60236
Int. Cl. H04j *3/14*
U.S. Cl. 179—15 BF **2 Claims**



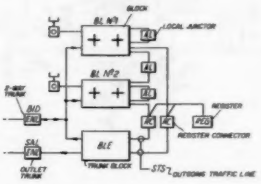
A system and method of testing a signal path in a time division switching system. In a switching system of this type the calling subscriber has one time slot assigned for communication with the called subscriber, and the called subscriber has a time slot for communication with the calling subscriber. The time slots are not necessarily in the same position relative to a frame of time slots. The calling and called subscribers are connected in a conventional manner via highway switching networks and a channel shifting network under control of a control circuit. A test of the circuit connection is made after the called subscriber is set-up for receiving the call but before the off-hook status of the called subscriber occurs. When the highway switch networks and the channel shifting networks are set-up by the control circuit to provide the connection path to the called subscriber, and while the called subscriber is in the on-hook condition, a gate is opened to connect the signals appearing on the incoming line for the called subscriber to the outgoing line for the called subscriber. A binary test signal is sent via the channel shifting circuit and the highway switching network to the incoming line of the called subscriber. The signal passes through the opened gate and then through the highway switching network and the channel shifting circuit back to the test circuit. If the connection path has been set-up correctly, the test signal received by the test circuit will be the same as the test signal transmitted by the test circuit.

3,823,270

TRUNKING ARRANGEMENT FOR MULTIPLE EXCHANGE SWITCHING SYSTEM

Miguel Fernandez Moreno, Madrid, Spain, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Aug. 9, 1972, Ser. No. 279,178
Int. Cl. H04q *3/58*
U.S. Cl. 179—18 EA **3 Claims**



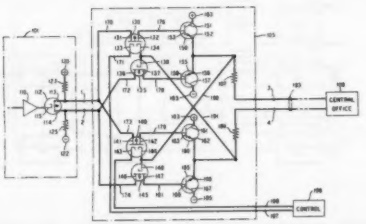
Trunking arrangement in which a direct path from a primary selector to a secondary selector is attempted. If no free paths are available, a path is completed to a support primary section to find an available path from the support primary to an available secondary. If no path can be found in this second try, a path is attempted from the support primary to support secondaries, the support secondaries being across split verticals in selector switches from the regular secondaries. If no path can be found an alternate route is attempted as if it were the original path attempted.

3,823,271

POLARITY REVERSAL CIRCUIT

Robert Lawrence Carbrey, Boulder, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 2, 1973, Ser. No. 356,318
Int. Cl. H03k *17/00*
U.S. Cl. 179—86 **9 Claims**



In a telephone type system wherein battery reversal signalling is employed, a polarity reversal circuit utilizing an emitter follower bistable is connected between an electronic exchange circuit and a trunk. The bistable is operative responsive to a sequence of momentary control signals to reverse the

voltage polarity at the trunk for signaling purposes while leaving the voltage polarity at the exchange invariant for proper operation of electronic output devices such as transistors in the exchange circuit. In either state, the bistable provides a voice signal path from the exchange circuit to the trunk.

3,823,272

ELECTRONIC TELEPHONE TRANSMISSION CIRCUIT

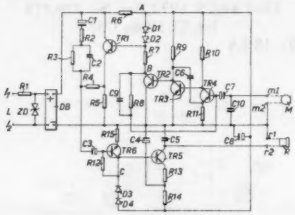
Camilo Manansala Tabalba, Harlow, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Nov. 21, 1972, Ser. No. 308,799

Claims priority, application Great Britain, Dec. 9, 1971, 57196/71

Int. Cl. H04m *1/58*; H04b *3/50*

U.S. Cl. 179—81 A 2 Claims



This electronic telephone transmission circuit (subset) replaces the conventional subset using the combination of carbon microphone, hybrid transformer and high sensitivity receiver. The circuit includes transmitter and receiver transistor amplifiers, means for effecting line loss compensation for both directions of transmission, and a resistor-capacitor active network configuration for giving all the properties of a hybrid transformer network without the use of any inductances.

3,823,273

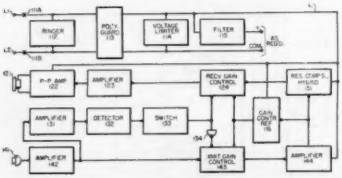
SUBSCRIBER'S TELEPHONE CIRCUIT

Robert H. Beeman, River Forest, and Robert T. Cleary, Lockport, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 17, 1971, Ser. No. 209,047

Int. Cl. H04m *1/60*

U.S. Cl. 179—81 B 11 Claims



A subscriber's telephone circuit providing automatic attenuation and equalization of both receive and transmit voice circuits in response to variations in loop length. An included voice switch also provides attenuation of the receive path circuitry when the subscriber's circuit is operated in the transmit mode.

3,823,274

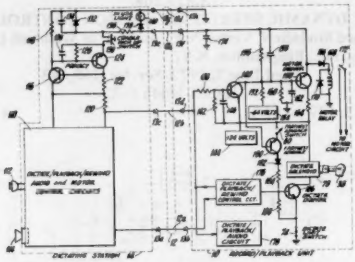
FARTHEST ADVANCE CIRCUIT FOR A REMOTE STATION DICTATING SYSTEM

Bjorn J. Matz, Forest Hills, N.Y., assignor to Dictaphone Corporation, Rye, N.Y.

Filed Jan. 10, 1973, Ser. No. 322,373

Int. Cl. G11b *15/56*; H04m *11/10*

U.S. Cl. 179—100.1 DR 5 Claims



An electronic farthest advance switch in the central record/playback unit of an endless tape recording system is biased to become conductive through a mechanical switch which is closed when a loop of recorded tape has been backspaced past the magnetic record/playback head. The conductive farthest advance electronic switch provides a bias voltage to the electronic seizure, dictate and motor driver switches in the record/playback unit to activate the motor and to energize a solenoid connected to a capstan pressure roller mechanism to thereby engage and advance the loop of recorded tape past the record/playback head so that the loop of tape is ready for transcribing. Simultaneously, a reverse bias voltage is supplied to each remote dictating station connected to the central record/playback unit to prevent the remote dictating stations from seizing control of the record/playback unit during the farthest advance operation.

3,823,275

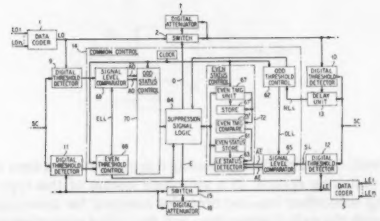
COMMON CONTROL DIGITAL ECHO SUPPRESSOR

Robert Ernest La Marche, Atlantic Highlands, and Carl Jerome May, Jr., Holmdel, both of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Aug. 10, 1972, Ser. No. 279,710

Int. Cl. H04b *3/20*

U.S. Cl. 179—170.2 5 Claims



A full echo suppressor having all of its control circuitry located at a near end of a plurality of two-way transmission paths is disclosed. Analogue signal levels on each line of each associated transmit-receive line pair are periodically converted into pcm codes and applied to a plurality of threshold detectors in a time slot for that line pair. Echo suppression is provided for echoes resulting from signal transmissions from the near end when common control circuitry determines, from information obtained from the threshold detectors, that a

receive line is currently idle and the associated transmit line was active a selected interval of time in the past. Echo suppression is provided for echoes resulting from signal transmissions from the distant end when common control circuitry determines, from information obtained from the threshold detectors, that a transmit line is currently idle and the associated receive line is currently active.

3,823,276

RECORDING/REPRODUCING RADIATION SYSTEM WITH THE RECORD MEDIUM WRAPPED AND GUIDED HELICALLY INSIDE A HOLLOW CYLINDER

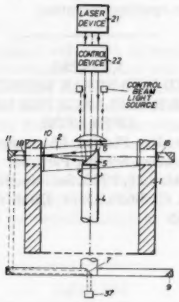
Stefan Maslowski, Aufheim; Manfred Borner, Ulm/Danube; Hans-Peter Huber, Thalfingen, and Werner Loffler, Ulm/Danube, all of Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed July 30, 1970, Ser. No. 59,471

Claims priority, application Germany, July 31, 1969, 1938790

Int. Cl. G11b *7/00;* **H04n** *5/84*

U.S. Cl. 179—100.3 B **16 Claims**



A high density optical data recording and reproducing system for use with light-sensitive tape-type recording carriers including a cylinder, a structure for guiding a tape carrying a light-sensitive substance along the inner surface of the cylinder and a mirror for continuously deflecting a recording or reproducing light beam around the periphery of the cylinder while the tape advances along the cylinder axis so that the beam describes a path across each tape oblique to its axis. In the case of recording, the beam is modulated by the information to be recorded and discolors the carrier. In the case of reproduction, the beam traverses the tape and the image on the illuminated portion is enlarged and focussed on a reproduction device.

3,823,277

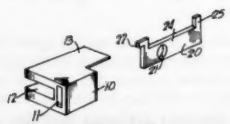
TELEPHONE LOCKING DEVICE

Dietmar H. Rudolph, Queens, N.Y., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Oct. 24, 1972, Ser. No. 299,777

Int. Cl. H04m *1/66*

U.S. Cl. 179—189 R **1 Claim**



A device for locking a telephone to prevent its use for both incoming and outgoing telephone calls by clamping the telephone plunger switch button in the down and OFF position. The device consists of two parts slidably fitted together, which are shaped so as to fit about the shelf of the telephone and the telephone switch button. A hole in one of the parts is of a size to admit a conventional telephone dial-type lock, which when so inserted, prevents the parts from sliding together to the position required for removal from an attached telephone.

3,823,278

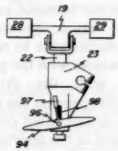
AERODYNAMICALLY ADJUSTABLE PANTOGRAPH

Richard T. Gray, Erie, Pa., assignor to General Electric Company, Erie, Pa.

Filed Dec. 26, 1972, Ser. No. 318,182

Int. Cl. B60l *5/12*

U.S. Cl. 191—66 **12 Claims**



Apparatus for maintaining a substantially constant force between a pantograph collector shoe and an overhead contact wire by aerodynamically moving the shoe to follow the vertical profile of the contact wire. The position of the contact wire is detected with respect to the collector shoe or its supporting frame and an airfoil attached to the pantograph is adjusted in response thereto to provide the requisite amount of positive or negative aerodynamic lift for the shoe to adjust its vertical position in correspondence with that of the overhead contact wire.

3,823,279

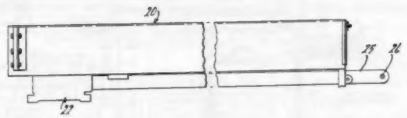
FLEXIBLE POWER CONNECTION MEANS FOR TRAVELING ELEMENTS

David A. Rausch, and Paul R. Johnston, both of Lancaster, Ohio, assignors to Diamond Press Specialty Corporation, Lancaster, Ohio

Filed Mar. 12, 1973, Ser. No. 340,116

Int. Cl. H02g *11/00*

U.S. Cl. 191—12 R **19 Claims**

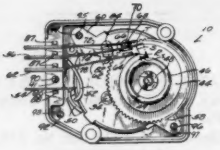


A helically coiled flexible electrical conductor extensible and retractable axially to provide electrical connection to a movable element is slidably supported on a rod which extends through it. Convolutions at the movable end of the coil also overengage a controlling member movable with the movable element and which limits forces exerted upon portions of the conductor close to its movable end.

3,823,280
TIMER

George Obermann, Niles; Michael H. Enger, Schaumburg, and Michael F. Misik, Jr., Norridge, all of Ill., assignors to Controls Company of America, Schiller Park, Ill.

Filed Oct. 26, 1973, Ser. No. 409,961
Int. Cl. H01h 43/10
U.S. Cl. 200—38 B 6 Claims

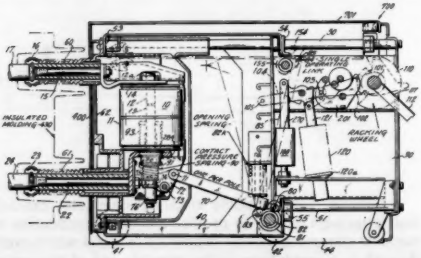


The motor subassembly is mounted in the housing with the motor leads dressed between the motor case and the housing and connected to the motor terminal and to a switch blade terminal and does not require grounding. The gear case somewhat divides the motor case to retain the coil while the motor case cover cooperates with the gear case to enclose and journal the gearing with the drive pinion projecting therebetween to drive the gear on the perimeter of the timing cam. The timing cam is journaled on the bushing extruded from the motor cover and in the aperture in the housing cover with the gear cluster extension projecting into and visible in the cam hub to afford visual verification of motor operation. The three switch blades are accurately located in the housing by tabs engaging locating cavities and the pivoted yoke has pads which space the two outside blades from each other. During the time between defrost cycles the No. 1 blade rides on the cam with the No. 2 blade engaging the No. 1 blade. When the No. 1 blade drops off the cam drop, the No. 3 blade engages the No. 2 blade and remains so engaged until the No. 2 blade drops off the cam. The tangential distance between the ends of blades No. 1 and No. 2 determines the duration of the cycle in combination with the rotational speed of the cam. All components are trapped by the assembly of the cover to the housing which is accomplished without fasteners. The great reduction in parts while completely enclosing the product results in a quiet, low cost, accurate timer which is easily serviced in the field by way of easy verification of operation.

3,823,281
DRAW-OUT TYPE MODULAR HIGH VOLTAGE SWITCHGEAR AND COMPARTMENT-MOTORIZED RACKING MECHANISM THEREFOR

George A. Wilson, Pineville, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Aug. 21, 1972, Ser. No. 282,358
Int. Cl. H01h 9/20, 33/46
U.S. Cl. 200—50 AA 18 Claims

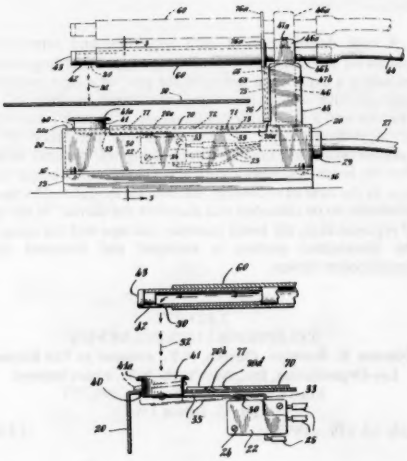


Racking mechanism for truck mounted withdrawal type switchgear in which circuit interrupter members are mounted on a frame telescopically movable with respect to the main truck frame. The frame carrying the circuit interrupter elements has disconnect contacts which may be engaged with stationary disconnect contacts connected to busses in a cubicle in a switchboard. The racking mechanism for moving the circuit interrupter carrying frame with respect to the truck mounted frame is motorized including a rotatable shaft on the truck frame with a crank on the shaft. Rotation of the shaft in one direction moves the circuit interrupter frame to engage the disconnect contacts and rotation in the other direction separates the disconnect contacts. The rotation of the shaft is performed by a plaste radially mounted on the shaft with sections on opposite sides of the plate and a reciprocal slide member extending adjacent the plate. On each movement of the slide member in one direction the plate and shaft on which it is mounted is rotated through a predetermined angle. The motorized racking mechanism during its rotations causes the slide to operate more than once to complete the movement of the circuit interrupter frame in either the racking-in or racking-out direction. The switchgear also contains opening springs for the contacts which may be recharged with the spring prevented from operating by a circuit condition responsive latch; the same motor may also be used to charge the spring following an opening operation.

3,823,282
FLUID OPERATED WEB BREAK DETECTOR ASSEMBLY WITH PERIPHERAL FLANGE FOR MICROSWITCH OPERATOR

George W. Bregar, Des Plaines, Ill., assignor to Korthe Engineering Corporation, Schiller Park, Ill.

Filed May 21, 1973, Ser. No. 362,405
Int. Cl. B65h 25/14; H01h 3/02
U.S. Cl. 200—61.18 3 Claims



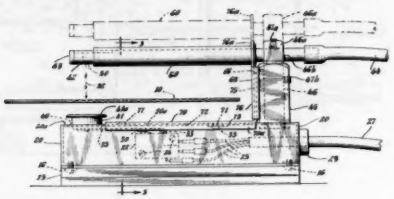
In air stream actuated web-break detectors an air-deflectable cup-like switch actuator is formed with a surrounding lip which shields the partially enclosed switch assembly from incursion of fiber and like particles otherwise tending to obstruct the switching function.

3,823,283

FLUID OPERATED WEB BREAK DETECTOR ASSEMBLY WITH SWITCH ACTUATOR MOTION BLOCKING MEANS

Clifford L. Larson, Des Plaines, Ill., assignor to Korthe Engineering Corporation, Schiller Park, Ill.

Filed Aug. 20, 1973, Ser. No. 389,889
Int. Cl. B65h *25/14*; H01h *3/02*
U.S. Cl. 200—61.18 3 Claims



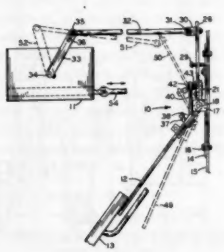
In air-stream actuated web-break detectors an air-deflectable cup-like switch actuator is formed with a surrounding lip which shields the partially enclosed switch assembly from incursion of fiber and like particles otherwise tending to obstruct the switching function. In operation an air-stream is projected through an elongated tube having an orifice which faces the switch actuator. For disabling the detector for repair purposes, a single movable assembly slides a sleeve over the tube orifice to interrupt the air-stream and concurrently moves into place a part which blocks the motion of the switch actuator.

3,823,284

FOOT OPERATED VEHICLE SIGNALLING APPARATUS WITH ADJUSTABLE MECHANICAL LINKAGE OPERATING MECHANISM

Benedict J. Hoffman, 2230 Chestnut St., Fort Wayne, Ind. 46803

Filed Mar. 19, 1973, Ser. No. 342,683
Int. Cl. H01h *3/14*
U.S. Cl. 200—61.89 15 Claims



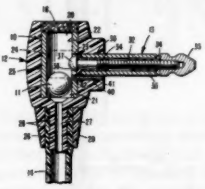
An adjustable hinge linkage connects a control switch with an auxiliary pedal which is actuated by the accelerator pedal of a motorized vehicle. The control switch is actuated by movement from any first switch position to a new switch position so that an automatic signalling apparatus is provided for the control of multicolored lights in response to a change in the position of the accelerator pedal. Thus a colored signal light automatically communicates intended vehicle velocity changes to other drivers before the intended velocity changes occur.

3,823,285

PNEUMATICALLY ACTUATED SWITCHING DEVICE WITH BALL CONTACT MEANS

Philip W. Dwyer, P.O. Box 51182, Jacksonville Beach, Fla. 32250

Filed Dec. 27, 1972, Ser. No. 318,735
Int. Cl. H01h *35/24*
U.S. Cl. 200—81 H 21 Claims



An electrically conductive sleeve having a bore therethrough is connected to a first conductor that is adapted to be connected to one side of an electrical circuit. A second conductor is mounted in an opening in the sleeve and is adapted to be connected to the other side of the electrical circuit. An electrically conductive ball is mounted in the bore and is movable by applying pneumatic pressure thereto betwen a circuit open position out of electrical communication with the second conductor and a circuit closed position in electrical communication with the second conductor and the sleeve. A cam surface extends into the bore and cams the ball into electrical communication with the second conductor and the sleeve in the circuit closed position. In a preferred embodiment, the cam surface is defined by a spring which flexes as the ball moves into and out of the circuit closed position so that the surface of the ball wipes against the surfaces of the bore and the spring, to clean such surfaces and thereby promote effective electrical communication therebetween. The bore is carefully dimensioned to very close tolerances so that the device is responsive to the application of a minimum pneumatic pressure. The pneumatic pressure is supplied by a deformable bulb manufactured in one piece by an injection molding technique to preclude leakage.

3,823,286

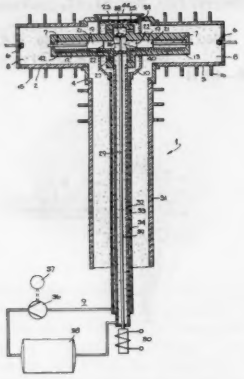
HIGH-VOLTAGE CIRCUIT BREAKER EQUIPPED WITH HYDRAULIC DRIVE

Gerhard Thurk, and Helmut Beier, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munchen, Germany

Filed May 9, 1973, Ser. No. 358,829
Int. Cl. H01h *33/34*
U.S. Cl. 200—82 B 8 Claims

A high-voltage circuit breaker has contacts switchable between open and closed positions and is equipped with a hydraulic actuator operatively connected to the contacts. The actuator is responsive to fluid pressure for switching the contacts. A first fluid supply supplies fluid under low pressure, and a second fluid supply supplies fluid under high pressure. A hydraulic reservoir at ground potential connects the first fluid supply with the second fluid supply for supplying fluid under pressure to the second fluid supply. A valve at high-potential is connected to the hydraulic actuator and includes valve discs for alternately connecting the first fluid supply and the second fluid supply to the hydraulic actuator. The valve discs are controlled from a location at ground potential with the aid of

member made of insulating material and are movable between first and second positions. At least one of the valve discs is exposed to the pressure of the fluid of the second fluid supply which places a tension load on the member and acts in a direction to return the discs to the first position.



3,823,287

VACUUM SWITCH

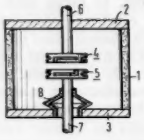
Hans Bettge, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Jan. 10, 1972, Ser. No. 216,523

Claims priority, application Germany, Apr. 1, 1971, 2015528

Int. Cl. H01h *33/66*

U.S. Cl. 200—144 B **5 Claims**



Circumferential current flow which serves to draw contact members together in a vacuum is produced by a vacuum switch having cup-shaped switch contacts having ring-shaped side portions which are subdivided by slots into segments. The circumferential direction of the current is produced by circumferential slots in the side portions which slots consist of a gap which extends parallel through the contact surface and connects with a vertical, chordially aligned cut in the contact surface.

3,823,288

VACUUM INTERRUPTER CAPACITANCE DISCHARGE AND CONTACT GROUNDING SYSTEM

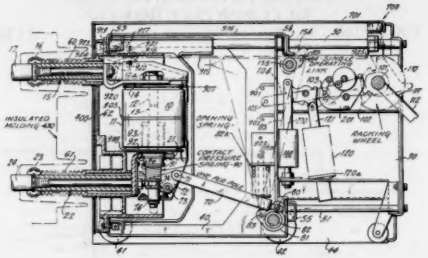
George A. Wilson, Pineville, Pa., assignor to I-T-E Imperial Corporation, Spring House, Pa.

Filed Nov. 1, 1972, Ser. No. 302,792

Int. Cl. H01h *33/66*

U.S. Cl. 200—144 B **4 Claims**

A vacuum interrupter capacitance discharge and contact grounding system for a withdrawal type telescoping circuit breaker mechanism wherein the interrupter is racked toward the frame of the structure to disconnect it and racked away from the frame to connect it in circuit; the frame carrying a plurality of flexible contact probes electrically connected to the frame which, in turn, has contacts engaging a grounding bus in the compartment. The flexible contact probes are individual to and aligned with a ring on the interrupter through which any capacitance may be discharged and with the respective terminals of the interrupter to discharge the capacitance and ground the terminals of the interrupter when the interrupter is racked to disconnect position and toward the frame.



3,823,289

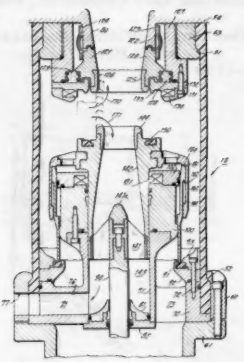
INTERRUPTER STRUCTURE FOR CIRCUIT BREAKER WITH INDIVIDUAL BLAST VALVES AND TIME-DELAYED UPSTREAM CUTOFF VALVE

Lorne D. McConnell, Radnor, and Hansruedi Aumayer, Newtown Square, both of Pa., assignors to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Aug. 27, 1971, Ser. No. 175,507

Int. Cl. H01h *33/80*

U.S. Cl. 200—148 B **8 Claims**



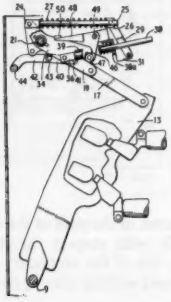
A plurality of series-connected interrupters are connected in series and are mounted in a low-pressure tank. Pairs of the interrupters are mounted on a high-pressure tank filled with SF_6 gas. Each individual interrupter contains its own blast valve, adjacent cooperating contacts and disposed radially interiorly of a main cooperating contact section, and radially exteriorly of an arcing contact section. Each of the individual interrupters further contain an upstream cutoff valve which cuts off the flow of high-pressure gas after an interruption operation. A time delay is provided for the operation of the cutoff valves.

3,823,290

ELECTRICAL SWITCHGEAR

George Caton, Ilkley, England, assignor to Yorkshire Switchgear and Engineering Co., Limited, Yorkshire, England

Filed Mar. 12, 1973, Ser. No. 340,304
Claims priority, application Great Britain, Mar. 16, 1972, 12484/72
Int. Cl. H01h 5/10
U.S. Cl. 200—153 SC 12 Claims



Electrical switchgear comprising a set of fixed contacts, a set of movable contacts mounted to close into engagement with the fixed contacts and to open out of engagement with the fixed contacts, a closing spring system having one or more springs, first movable restraining means restraining first ends of said springs, second movable restraining means restraining second ends of said springs, means connecting said second restraining means to move with the movable contacts; an opening spring system having one or more springs, third restraining means restraining first ends of said opening springs, and fourth restraining means restraining second ends of said opening springs; means connecting said third restraining means to said movable contacts; a first lever system for charging said closing spring system by moving said first restraining means independently of said movable contacts; a second lever system for charging said opening spring system by moving at least one of said third and fourth restraining means, such movement not being transmitted through said closing spring system; a first latch for releasably latching said closing spring system in its charged conditions, said first latch being operable when released to release said second restraining means and so allow said movable contacts to move to the closed position under the force in the charged closing spring system; and a second latch for releasably latching said opening spring system in its charged condition, said second latch being operable when released to release said third restraining means to allow said movable contacts to open under the force in the charged opening spring system.

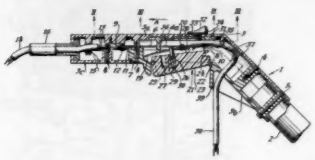
3,823,291

ELECTRIC SWITCH FOR PORTABLE ELECTRIC APPLIANCES

Edgar Albert Philip Milcoy, "The Pastures" 3 Backshay Pk., South Milton, near Thuristone, England

Filed Jan. 15, 1973, Ser. No. 323,894
Int. Cl. H01h 3/20
U.S. Cl. 200—157 6 Claims

An electric switch, which is particularly suitable for controlling the operation of a portable electric appliance, for example a lawn mower, comprises a support, a first contact fixed relative to said support, a second contact movable into and out of engagement with the first contact, a contact-actuating member movable relative to the support for effecting electrical contact between the first and second contacts, a locking means movable relative to said support between a first position in which it prevents engagement of said first and second contacts and a second position in which it allows engagement of the first and second contacts, and means urging the locking means towards said first position. The locking means may



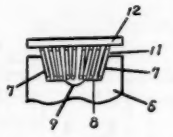
comprise a push button slidably mounted on the support, this push button preferably being positioned relative to the contact-actuating member so that both the push button and the contact-actuating member can be operated by the fingers of one hand of a person operating the appliance on which the switch is mounted.

3,823,292

PUSH-BUTTON SWITCH WITH CONDUCTIVE COIL SPRING CONTACT

Taneo Murata, Tokyo, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Mar. 16, 1973, Ser. No. 341,866
Claims priority, application Japan, Mar. 17, 1972, 47-32197
Int. Cl. H01h 1/06, 13/12
U.S. Cl. 200—159 R 4 Claims



A push-button switch comprises a substrate, supporting thereon an electric circuit, and a slider lever. The slider lever carries a conductive coil spring which functions as a moving contact which will open and close the electric circuit as the slider lever moves relative to the substrate.

3,823,293

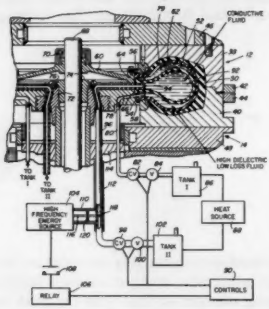
DIELECTRIC HEATING APPARATUS

Charles L. Gilliatt, Andover, Mass., assignor to Raytheon Company, Lexington, Mass.

Division of Ser. No. 277,463, Aug. 2, 1972, Pat. No. 3,770,931. This application July 2, 1973, Ser. No. 375,404
Int. Cl. H05b 5/00, 9/00
U.S. Cl. 219—10.41 2 Claims

A method of and apparatus for heating moldable articles, such as pneumatic rubber tires, is disclosed utilizing an inner expandable bladder having an electrically conductive fluid, such as mercury, salt water, or woods metal. A source of high frequency energy in the range of, illustratively, from 1 to 60 megahertz is coupled between the conductive fluid and the metallic tire vulcanizing apparatus to rapidly heat the inner casing wall surfaces to the desired curing temperatures. A second outer bladder conforming to the casing walls contains a high dielectric constant low thermal loss fluid, such as silicone oil. The inner bladder is contoured to provide a greater volume of such fluid adjacent to the thinner sidewalls and thereby expose the heated conductive fluid closer to the

thicker tire tread region. The heating field strengths are thereby distributed substantially uniformly in all parts of a



moldable article having a nonsymmetrical cross-sectional configuration and it is maintained in the desired shape during heating.

3,823,294

DOOR LOCKING SYSTEM FOR AN ELECTRICAL APPARATUS

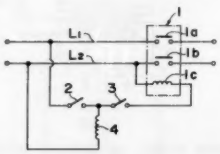
Takeshi Takayama; Akeshi Tanita; Saburo Hoshina, and Tadayasu Ohtaguro, all of Kawasaki, Japan, assignors to The General Corporation, Kanagawa-ken, Japan

Filed Aug. 31, 1971, Ser. No. 176,658

Claims priority, application Japan, Oct. 1, 1970, 45-86468; Aug. 31, 1970, 45-76150

Int. Cl. H05b *9/06*

U.S. Cl. 219—10.55 **6 Claims**



A door locking system for an electrical apparatus is provided with a solenoid-operated contactor having contacts connected in the electrical circuit of the apparatus to which the system is applied. The energizing circuit for the solenoid of the contactor includes at least two switching means. One of the switching means is manually operable for controlling an electromagnetic drive coil that is connected with power supply through said one switching means. Lock means acting upon a door is operated by the drive coil. The other switching means is operated by the operation of the lock means.

3,823,295

ELECTRONIC OVEN WITH MODE EXCITER AND TUNING PROBES

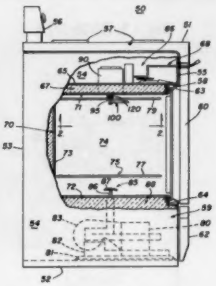
Donald J. Simon, and Louis H. Fitzmayer, both of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Jan. 2, 1973, Ser. No. 320,140

Int. Cl. H05b *9/06*

U.S. Cl. 219—10.55 **12 Claims**

An electronic oven includes a heating cavity, a microwave antenna coupled to a source of microwave energy and disposed centrally of the bottom of said cavity for radiating thereinto microwave energy of a predetermined frequency for exciting a predetermined primary mode electromagnetic field in the cavity, a conductive member in the cavity adjacent to the top thereof and rotatably driven about the axis of the antenna for exciting secondary modes complementary to the primary mode at frequencies somewhat higher than the predetermined frequency, and two tuning members mounted at the top



of the cavity adjacent to the path of the conductive members and symmetrically with respect thereto for coupling the highest frequency one of the secondary modes and reducing the frequency thereof without altering coupling of the primary mode.

3,823,296

INDUCTION HEATING COIL ARRANGEMENT IN INDUCTION HEATING EQUIPMENT

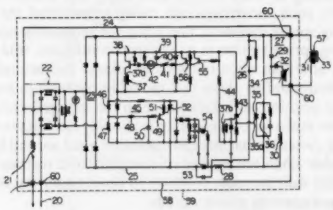
Keizo Amagami; Hazime Mori; Takao Kobayashi; Mitsuyuki Kiuchi, and Yoshio Ogino, all of Osaka, Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed July 26, 1972, Ser. No. 275,306

Claims priority, application Japan, Apr. 10, 1972, 47-36368; Apr. 10, 1972, 47-36369; Apr. 10, 1972, 47-36592; Apr. 12, 1972, 47-37247; Apr. 10, 1972, 47-42647[U]

Int. Cl. H05b *5/04*

U.S. Cl. 219—10.77 **2 Claims**



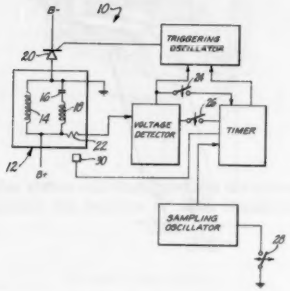
Herein disclosed is an inverter device for use in an induction heating equipment in which an oscillating current having a suitable frequency is fed to an induction heating coil which is placed in proximity to a material to be heated, whereby eddy current and hysteresis loses are invited in the material to be heated so that heat is generated in the material. The inverter device features provision of noise preventive means, adapted to dampen out the high-frequency field built up by the component elements of the inverter circuit, leak current preventing means adapted to prevent leakage of current from the material to be heated to ground, and a variable inductor arrangement adapted to vary the apparent inductance of the induction heating coil. A typical application of the inverter device is an induction heating cooking equipment.

3,823,297

LOAD CONTROLLED INDUCTION HEATING

Ronald J. Cunningham, 5460 Eagle Rockview Dr., Los Angeles, Calif. 90041

Filed Oct. 2, 1972, Ser. No. 294,218
Int. Cl. H05b 5/04
U.S. Cl. 219—10.77 30 Claims



An induction heating apparatus employing a series tuned, resonant circuit including a work coil adapted to be coupled to a load to be heated in a parallel, tuned, resonant tank circuit, a current release means for releasing current pulses to the tank circuit so as to cause resonance in this tank circuit and an operation control means for controlling the release of current pulses by the current release means can be made essentially automatic in operation to various degrees by including within the apparatus one or more of several different means.

The apparatus preferably includes a detector means for determining the presence or absence of the load coupled to the work coil and associated means for regulating the release of current pulses in accordance with the presence or absence of such a load. This detection means is preferably a voltage detection means used in conjunction with a sampling means serving to cause a release of current pulses without causing significant heating so that a voltage change in a tank circuit can be detected even when the apparatus has not been used for heating. When a load is detected by the detection means the apparatus is operated for either a time interval or until a predetermined condition of the load is reached unless during such a period the load is for any reason removed from the work coil.

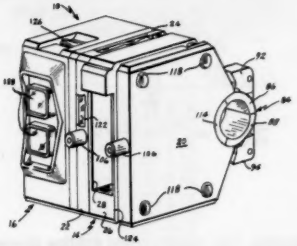
3,823,298

CASSETTE-TYPE TUBE WELDER

Roderick G. Rohrberg, and Dale R. Brubaker, both of Torrance, Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed June 8, 1973, Ser. No. 368,390
Int. Cl. B23k 9/02
U.S. Cl. 219—60 A 10 Claims

A cassette-type tube welder for the rapid in-place welding of tubes. This welder includes an electric welding means, a tube gripping means and a power pack having a drive motor and controls. The welding means is in the form of a welding cassette which contains a rotatable tube encircling means that houses the welding electrode. A hydraulically operated piston supplies the motive force to a gripping means secured to the welding cassette in order to butt the tubes to be welded during



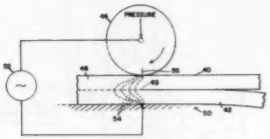
the welding operation. This tube welder may further be made in a variety of sizes and may accommodate a variety of cassettes.

3,823,299

METALLURGICAL BONDING AND FORMING PROCESSES AND APPARATUS

Arthur G. Metcalfe, San Diego, and Fred K. Rose, Chula Vista, both of Calif., assignors to International Harvester Company, San Diego, Calif.

Division of Ser. No. 856,526, Sept. 8, 1969, Pat. No. 3,644,698. This application Feb. 18, 1972, Ser. No. 227,683
Int. Cl. B23k 11/06
U.S. Cl. 219—83 21 Claims



Methods of and apparatus for forming a continuous solid state diffusion bond between metallic members in which the members to be joined are locally and progressively subjected to heat and pressure. Heating is achieved by workpiece resistance to controlled electrical current, and pressure is applied by rotatable electrodes that: generate contact between the members being joined and produce the deformation necessary to achieve a specified joint configuration therebetween; supply the controlled electric current to heat the workpiece locally and progressively; and are maintained at a temperature which results in essentially isothermal local conditions in the workpiece. Preferably, controls capable of regulating the bonding temperature are provided to insure that a uniform joint is produced. Methods of and apparatus for forming metallic members with and without bond formation by the techniques just described.

3,823,300

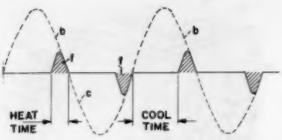
SEAM WELDING METHOD

Robert H. Blair, Bay City, Mich., assignor to Resistance Welder Corporation, Bay City, Mich.

Filed Dec. 11, 1972, Ser. No. 313,773
Int. Cl. B23k 11/06
U.S. Cl. 219—83 7 Claims

A high speed seam welding method wherein single phase alternating current welding pulses, of sufficient amperage to produce the energy to weld the material when transmitted during only a fractional portion of each current half cycle, are applied to electrode mechanism during only a less than max-

imum amplitude fractional portion of the wave form representing each successive current half cycle, and the current is substantially cut off between current applications to



permit cooling. The relative seam welding movement of the electrode mechanism and the material to be seam welded is coordinated with the duration of the welding and cooling periods to more rapidly form a line of uniform weld nuggets.

3,823,301

APPARATUS FOR GRANULATING STRAND OR ROD-SHAPED MATERIAL

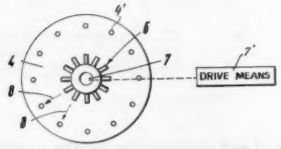
Walter Swarat, Elmhurst, Ill., assignor to Condux-Werk Herbert A. Merges KG, Wolfgang near Hanau, Germany

Filed Dec. 8, 1972, Ser. No. 313,566

Claims priority, application Germany, Dec. 9, 1971, 2161004

Int. Cl. B23k *27/00*

U.S. Cl. 219—121 L **2 Claims**



Material which has been shaped into the form of rods or strands is cut into pieces, adjacent the region where it is shaped, by a laser beam directed transverse to the length of the rods or strands.

3,823,302

APPARATUS AND METHOD FOR PLASMA SPRAYING

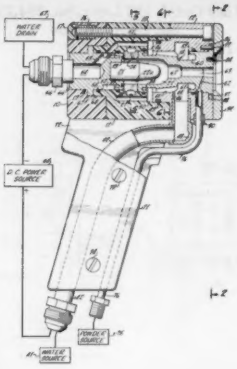
Erich Muehlberger, Costa Mesa, Calif., assignor to Geotel, Inc., Amityville, Long Island, N.Y.

Continuation of Ser. No. 214,584, Jan. 3, 1972, abandoned. This application June 21, 1973, Ser. No. 372,260

Int. Cl. B23k *9/00*

U.S. Cl. 219—121 P **26 Claims**

An extremely high-powered electrical plasma-jet spray torch is constructed economically, safely, and in a compact manner, by use of three coaxial body members held together by longitudinal, internal bolts. No external housing is necessary, the handle being screwed directly onto one of the body members. Two removable electrodes are provided and are separated from each other by a gas-injector ring of heat-resistant insulating material. The electrode ends adjacent the gas injector are water-cooled and are provided with O-ring seals. Powder is injected into the plasma by use of a rotatable anode adapted to permit selective use of different types of injection, thus vastly increasing the utility of the anode.



In accordance with the method, supersonic flow is employed in combination with very high powers, and plural-port powder injection, to achieve extremely high spray rates.

3,823,303

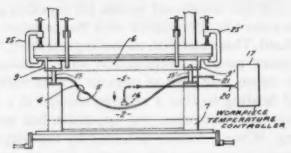
CERAMIC DIE PRESS SYSTEM

William E. Manchester, Lomita, and Douglas B. Hugill, Hermosa Beach, both of Calif., assignors to Northrop Corporation, Los Angeles, Calif.

Filed Aug. 28, 1972, Ser. No. 284,422

Int. Cl. B21j *5/00*

U.S. Cl. 219—153 **3 Claims**



A method of forming sheet metal, especially titanium, utilizing resistance heating of the sheet metal part, and forming the part by use of relatively simple ceramic dies. The forming method includes closely controlled cooling of the formed part between the forming dies before removal from the dies to eliminate undesirable warping due to uncontrolled cooling.

3,823,304

AUTOMATIC CONTROL SYSTEM FOR LIMITING ICE FORMATION IN GUTTERS AND DOWNSPOUTS

Roman Siemianowski, 1647 N. Paulina St., Chicago, Ill. 60622

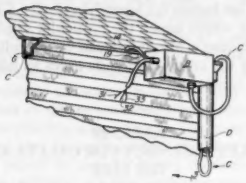
Filed May 14, 1973, Ser. No. 360,148

Int. Cl. H05b *1/00*

U.S. Cl. 219—213 **7 Claims**

A gutter waste sensor comprising a grounded electrode and a water sensing electrical probe mounted on an insulated block which is vertically adjustable to various levels on a hollow stand extending upward from the bottom of the gutter. The water sensing probe is located and spaced protectively between members of the vertical stand. The grounded electrode terminates on the stand at a lower level than the probe. The probe and grounded electrode are part of a solid state

electronic circuit for detecting the presence of water at the predetermined level in the gutter and energizing an electrical



heating cable system laid therein to limit the accumulation of ice and prevent the overflow of water therefrom during a thaw.

3,823,305

ARRANGEMENT FOR REGULATING SUPPLY OF HEAT FROM A HEAT ACCUMULATING DEVICE

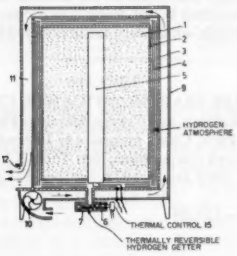
Johann Schroder, Aachen, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed June 16, 1972, Ser. No. 263,673

Claims priority, application Netherlands, June 24, 1971, 7108700

Int. Cl. F28f *13/02*; **F24h** *7/04*; **H05b** *1/02*

U.S. Cl. 219—365 **8 Claims**



A heat accumulating device includes a double-walled reservoir filled with a material suitable for storing heat and provided with heating means for heating the material. The free space bounded by the double walls of the reservoir accomodates a plurality of foil radiation screens and the free space is further filled with a hydrogen atmosphere. The hydrogen filled free space is in communication with a reservoir containing a thermally reversible hydrogen getter. By regulation of the temperature of the hydrogen getter by means of an electric heater associated therewith, the hydrogen pressure in the free space and hence thermal conductivity of the free space is controlled whereby the transfer of heat through the walls of the reservoir from the heat storage material is readily regulated. Means may be provided to effect the supply of heat from the reservoir to the surrounding ambient by forced convection. The free space may be divided into a plurality of compartments completely separated from each other with each compartment being communicating with a separate thermally reversible getter whereby discharge of heat from different portions of the reservoir can be separately regulated.

3,823,306

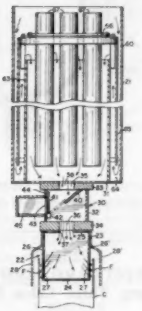
HOT AIR SEALING APPARATUS

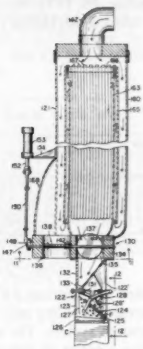
Robert E. Davis, 19 Cook Rd., Nutley, N.J. 07110

Filed Jan. 30, 1973, Ser. No. 328,148

Int. Cl. H05b *1/00*; **B65b** *51/20*

U.S. Cl. 219—373 **5 Claims**





A carton sealing apparatus for incorporation in a carton filling and closing line which is characterized by a hot air generator with a discharge nozzle having perforated areas positioned for applying hot air to carton closure panels advanced past the same which panels are supplied with a heat activatable adhesive substance, and associated mechanism for guiding the panels into carton closing position where they are sealed by the adhesive. A bypass arrangement is provided adjacent the nozzle to enable quick discontinuance of the application of the hot air to the adhesive carrying surfaces and equally quick resumption of the application of the hot air without discontinuing the air flow or changing its character.

3,823,307

HEATING VESSELS

Robert Weiss, Sursee, Switzerland, assignor to Sursee-Werke AG, Sursee, Switzerland

Filed Apr. 26, 1973, Ser. No. 354,533

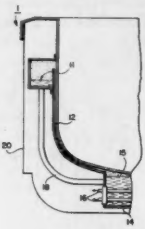
Claims priority, application Switzerland, May 9, 1972, 6859/72

Int. Cl. F27d *11/02*

U.S. Cl. 219—439 **9 Claims**

A closed heating system for heating vessel comprising a water reservoir located underneath the bottom of the vessel, a narrow conduit extending upwardly along the sides of the vessel to create a capillary action on the rising steam and prevent

air-steam mixing in the conduit, a steam-air separation chamber connected to the top of the conduit for trapping air

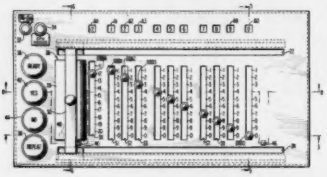


in the system and condensing the steam, and a condensate return conduit for returning condensed steam to the reservoir.

3,823,308
CREDIT CARD VERIFIER

Kenneth M. Goldberg, Three Lakes St., Lynnfield, Mass. 01940

Continuation of Ser. No. 880,265, Nov. 26, 1969, abandoned. This application Dec. 20, 1971, Ser. No. 210,272
Int. Cl. G06k *5/00;* **H04m** *11/00*
U.S. Cl. 235—61.7 B **19 Claims**

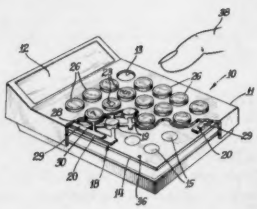


A low cost credit card verifier unit for use in conjunction with a time-shared central processing unit (CPU) or computer in a credit card verification system. The unit includes a tone generator for generating a series of ten tones identifying the code on a credit card whose status is to be checked. Ten adjustable digit set buttons are manually positioned in accordance with the code on the credit card. In one form of the invention, after the verifier unit is connected to the CPU via a telephone line, a roller is moved from a starting position sequentially over the positioned buttons to depress them and cause them to operate the tone generator which transmits to the CPU a series of ten tones corresponding to the code on the card. After the roller has traversed all the buttons, it is now in a second position. Upon receipt of the tones, the CPU sends back to the verifier unit a status signal of the credit card. Moving the roller back to its starting position resets the circuits of the verifier unit to permit another credit card code to be sent to the CPU. The verifier unit also contains means for accessing the CPU and a ready light which is energized by a ready signal transmitted by the CPU when the CPU is ready to accept data. A movable stop on the verifier unit normally prevents the roller from leaving its starting position, but the stop is depressed upon energization of the ready light to permit movement of the roller across the digit set buttons to a second position. Another stop normally prevents the roller from returning from its second position to its starting position, but this stop is depressed by energization of either a status lamp or repeat lamp on the verifier unit. The repeat lamp is energized by a repeat signal transmitted by the CPU when an invalid code is transmitted or upon a CPU malfunction. The repeat lamp is also energized if no signal is received from the CPU a predetermined time after computer access has been indicated. The roller may then be returned to its starting position where it actuates a reset button which de-energizes all the indicating lamps. After each status or repeat signal, the CPU also transmits a disconnect signal which automatically disconnects the verifier unit from the telephone line, thereby keeping telephone company time charges to a minimum. The credit card verifier unit also contains an additional foreign company digit set button for identifying to the CPU the name of the company which issued the particular credit card to be verified. This button is also depressed by the roller and transmits along with the credit card code tones an additional tone identifying the company.

3,823,309
MULTIPLE KEY ASSEMBLY FOR CALCULATORS AND THE LIKE

Jerome C. Caruso, 1165 W. Ash Lawn Dr., Lake Forest, Ill. 60045

Filed June 21, 1973, Ser. No. 372,394
Int. Cl. G06c *7/02;* **B41j** *5/08*
U.S. Cl. 235—145 R **4 Claims**

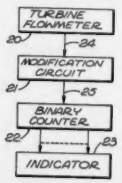


The keyboard for a small electronic calculator comprises a matrix of bosses connected by flexible webs. The bosses have the indicia printed on the top thereof. Projections extend from the underside of the bosses to the electric switches arranged on a separate circuit board. Each boss is covered with a transparent plastic cap, which caps are connected by integral webs.

3,823,310
PULSE TRAIN MODIFICATION CIRCUIT

Paul Zoltan Kalotay, and George Aloysious Fitzpatrick, both of Monterey Park, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Jan. 8, 1973, Ser. No. 321,662
Int. Cl. G01f *1/04*
U.S. Cl. 235—151.34 **19 Claims**



For the purpose of indicating the total volume of fluid flow in a pipeline corrected to 60° (Fahrenheit) barrels, the pulse train output of a turbine flowmeter is corrected for temperature by eliminating every tenth pulse leaving sets of nine and adding a number of pulses to the sets of nine, which number is directly proportional to that contained in an analog-to-digital converter storage register. The converter is connected to circuits which produce a D.C. voltage proportional to the temperature of the fluid. An inverter, two differentiators and an OR gate are employed to produce pulses at a pulse repetition frequency (PRF) twice that of the incoming pulses. The pulse

adding circuit has a set of first, second . . . eighth AND gates which receive pulse trains of pulse repetition frequencies f, f/2, f/4, f/8, f/16, f/32, f/64, and f/128, respectively, where f is twice the PRF of the incoming pulses. The first, second . . . eighth AND gates are controlled by the first, second . . . eighth flip-flop in the register, where the first, second . . . eighth flip-flops correspond to the most, next most . . . least significant digits of the number contained in the register. An insertion circuit adds the pulses to the sets of nine at a time T/2 before and/or after one pulse in one set of nine, where T = f/2. A divide-by-ten divider is connected from the AND gates to reduce the number of added pulses so that they vary the average number of pulses recorded by a counter that counts the sets of nine plus the added pulses. The number of counted pulses then can vary from 90 percent to about 110 percent of the incoming pulses for register binary numbers from zero to 11111111. An indicator is connected from the counter to indicate the count thereof.

3,823,311

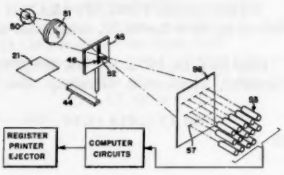
SUM OF CROSS PRODUCTS MULTIPLICATION AND ROUNDING

Kenneth C. Allen, and Edwin E. Boshinski, both of Dayton, Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio

Continuation of Ser. No. 85,139, Oct. 29, 1970, abandoned, which is a division of Ser. No. 422,730, Dec. 31, 1964, Pat. No. 3,557,353. This application July 6, 1973, Ser. No. 369,282

Int. Cl. G06f 7/52

U.S. Cl. 235—160 **4 Claims**



A computing and printing scale system includes a pulse generator and an optical scale incorporating a mechanism which reads out the balance position of the platter and stores the weight information by selective transmission of pulses directly to a series of pulse counters each representing one column of weight information. Thereafter, the value of the weighed load at a preset unit price is computed by selective transmission of pulses to a series of value counters in accordance with partial product multiplication of the digits of weight and unit price, controlled in part by the weight counters. Finally, the weight and value information stored in the counters is transmitted to a printer-register which prints the information on a label.

3,823,312

ILLUMINATED BOOK HOLDER

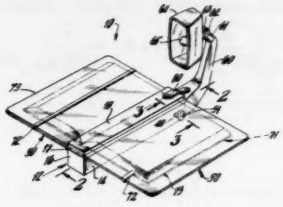
Miriam Weinstein, Panther Valley, W6-Apt. 8, Hackettstown, N.J.

Filed Feb. 16, 1973, Ser. No. 333,198

Int. Cl. F21v 33/00

U.S. Cl. 240—6.4 B **11 Claims**

This book holder comprises a spine in form of a container for batteries. The container is open at the top so that the batteries can be dropped down therein. A cover closes the top of the container. Leaves hinged to the upper ends of the side walls of the container, extend outwardly to support the covers of a book placed in the holder, with the spine of the book resting on the cover of the container. A lamp holder is mounted on the forward end of the container and has a hinged lamp adjustable to direct light to various parts of the leaves of the book on the holder. A switch on the container is controlled to automatically turn the lamp "on" when the holder leaves are spread open to open the book for reading and to turn the lamp



"off" when the leaves of the holder are brought together to close the book. The book cover can be slipped under bands on the holder leaves to open and close the book when the holder is opened or closed, respectively.

3,823,313

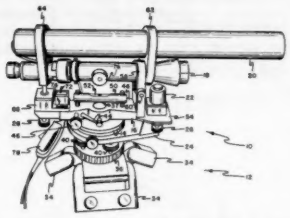
LASER FANNING DEVICE

Norman P. Unema, Hudsonville, Mich., assignor to Laser Alignment Inc., Grand Rapids, Mich.

Filed Feb. 14, 1972, Ser. No. 225,969

Int. Cl. F21v 19/02

U.S. Cl. 240—44.26 **23 Claims**



A laser generator is mounted on a conventional transit for rotation about a vertical axis. A crank is interconnected at one end to the support structure of the transit and at its other end to the drive of an electric motor affixed to the transit and laser generator. Operation of the motor and crank causes rotational and reciprocal movement of the transit and generator about an axis to develop a datum plane of light. A control knob provides grade adjustment and is linked to a digital counter to provide a visual readout of the grade.

3,823,314

LAMP ASSEMBLIES

Michael John Germany, Lichfield, England, assignor to The Lucas Electrical Company Limited, Birmingham, England

Filed June 13, 1973, Ser. No. 369,546

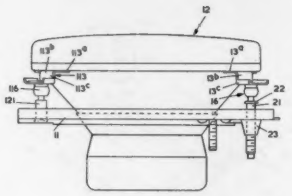
Claims priority, application Great Britain, June 13, 1972, 27537/72

Int. Cl. F21v 7/00

U.S. Cl. 240—41.6 **6 Claims**

A lamp assembly comprises a lamp unit, a support member for attachment to a motor vehicle, and a pair of spaced adjustment devices for adjusting the position of the lamp unit relative to the support member. The lamp unit is also connected with the support member by a pivot assembly so that adjustment of either adjustment device causes the lamp unit to be moved relative to the support member about an axis which passes through the pivot assembly and the other adjustment

device. Each adjustment device comprises a flange secured to the lamp unit, a coupling member snap-fitted into a slot in the flange, and a screw-threaded shank having a ball engaged as a



snap-fit in a socket on the coupling member. The shank is screw-threaded into a nut secured to the support member so that rotation of the shank relative to the nut causes adjustment of the lamp unit relative to the support member.

3,823,315

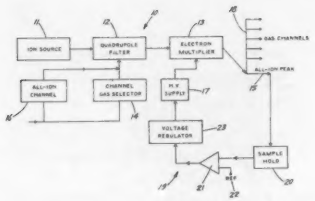
AUTOMATIC GAIN METHOD AND CONTROLLER FOR MASS SPECTROMETER

Mostafa A. Mosharrafa, Edina, Minn., assignor to Automated Medical Systems, Inc., Minneapolis, Minn.

Filed Oct. 30, 1972, Ser. No. 302,256

Int. Cl. H01j *39/34*; **B01d** *59/44*

U.S. Cl. 250—283 **13 Claims**



A method and apparatus for analyzing relative abundance of the composition of a sample with a mass spectrometer having an electron multiplier controlled with a high voltage supply. When the sample is a gas mixture, the volume per cent of a gas is analyzed. The all-ion peak signal is repetitively sampled and held to produce an analog output voltage. This output voltage is compared with a reference voltage via an error amplifier in a feedback loop to control the high voltage applied to the electron multiplier so that the all-ion peak signal of the mass spectrometer is maintained a constant.

3,823,316

IONIZING RADIATION APPARATUS AND METHOD FOR ANALYZING FLOWING SUBSTANCES

Colin Ralph Boswell, North Island, New Zealand, assignor to United Kingdom Atomic Energy Authority, London, England

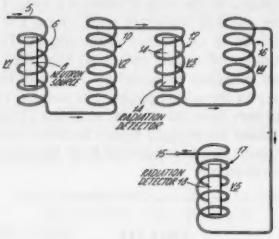
Filed Aug. 3, 1971, Ser. No. 168,607

Claims priority, application Great Britain, Aug. 10, 1970, 38512/70

Int. Cl. G01n *23/12*

U.S. Cl. 250—375 **5 Claims**

Methods and apparatus are disclosed for analyzing a flowing sample to detect one substance therein having a predetermined halflife, or two (or more) substances having respectively different half-lives. The sample flows past a first location, where it is irradiated with neutrons, and then through a single detecting location or two or more serially arranged detecting locations (according to the number of substances to be detected) where the radiation is detected for subsequent analysis of its spectrum. When detecting one substance, it is proposed to select a flow rate in relation to the particular delay volumes in the system such that the radiation activity is a maximum at which value it is little dependent on small changes in the flow rate. This flow rate would be different for each of two substances to be detected, and, in such a case, it is



proposed to use a very high flow rate such that the dependence of the activity of flow rate changes is again small. As an alternative, it is proposed that the respective delay volumes in the system between the irradiating location and each of the two detecting locations be so selected in relation to the respective half-lives of the two substances to be detected that there is a single flow rate which gives maximum activity at both of the two detecting locations.

3,823,317

THERMOCOPYING APPARATUS

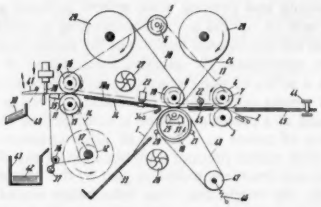
Gerhard Ritzerfeld, 1000 Berlin 33, Schorlemer Alee 14, Germany

Filed Nov. 10, 1972, Ser. No. 305,590

Claims priority, application Germany, Dec. 13, 1971, 2162466

Int. Cl. G01d *15/10*

U.S. Cl. 250—318 **11 Claims**

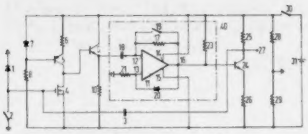


The thermocopying arrangement includes a source of infrared radiation focused on a line between a rotary transparent tube and a pressure roller. A transfer web having on one side a heat-responsive layer is transported through the line with the layer facing away from the source of radiation, and is wound up on a reel. At the same time, a master sheet is transported through the line in contact with the free other side of the transfer web, and a copy sheet web, or an individual copy sheet, is transported through the line in contact with the layer so that an image of the master sheet is formed on a copy sheet section, or on a copy sheet. After passage through the line, the master sheet and the copy sheet are separated from the transfer web which is wound up for further use. The separated master sheet can be again fed by the machine operator to the line of focused infrared radiation together with the transfer web and a new copy sheet.

3,823,318
CIRCUIT ARRANGEMENT FOR EXPOSURE MEASURING DEVICES

Gerhard Krause, Ebersberg, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Jan. 10, 1973, Ser. No. 322,306
Claims priority, application Germany, Mar. 7, 1972, 2210945
Int. Cl. H01j 39/12
U.S. Cl. 250—214 P 10 Claims

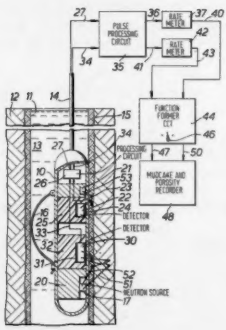


Circuit arrangement for exposure measuring devices with a light detector operating as a photo element and measuring light conditions, which element is switched on at the initiation of a light measurement and operates into a load as well as an amplifier with a high-pass characteristic.

3,823,319
POROSITY DETERMINATION WITH MUDCAKE CORRECTION

Jay Tittman, Danbury, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 65,876, Aug. 21, 1970, abandoned. This application Mar. 23, 1973, Ser. No. 344,300
Int. Cl. G01t 1/16
U.S. Cl. 250—265 7 Claims

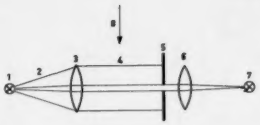


An illustrative embodiment of the invention provides an accurate mudcake correction for sidewall neutron borehole logging tools. A sidewall porosity sonde is equipped with a vertically separated neutron source and a neutron detector that are both eccentered in the tool in order to engage one side of the borehole wall. This basic porosity measuring array is supplemented by a source of lower energy neutrons having appreciably shorter slowing down length and another detector, for appropriately sensing the influence of the mudcake. A circuit combines signals from the detectors to produce an indication of the formation porosity.

3,823,320
ELECTRO-OPTIC DEVICE FOR COUNTING OBJECTS

Johan Ledoux, Wageningen, Netherlands, assignor to N. V. Ledoux, Dodewaard, Netherlands

Filed Sept. 7, 1972, Ser. No. 286,998
Claims priority, application Netherlands, June 16, 1972, 7208307
Int. Cl. G01p 3/68
U.S. Cl. 250—222 PC 1 Claim

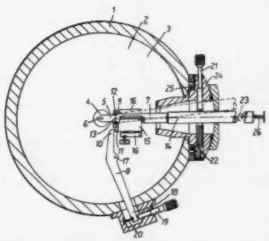


A ribbon-shaped beam of light is projected onto an objective lens, and a light transducer has a sensitive surface onto which the ribbon-shaped beam of light is focussed by the lens as a small light spot. The ribbon-shaped beam of light extends transverse to and intersects the path of movement of the objects. Means, arranged across the path of the ribbon-shaped beam maintains a predetermined gradation in light density across the width of the beam.

3,823,321
PARTICLE-BEAM APPARATUS SUCH AS AN ELECTRON MICROSCOPE OR THE LIKE

Moriz Von Rauch, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Continuation of Ser. No. 275,561, July 27, 1972, abandoned. This application July 30, 1973, Ser. No. 383,712
Claims priority, application Germany, Aug. 20, 1971, 2142587
Int. Cl. H01j 37/20
U.S. Cl. 250—442 4 Claims

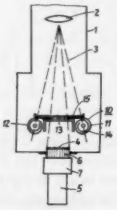


A particle-beam apparatus such as an electron microscope or the like has a housing containing a beam generator for generating a particle beam, and a specimen carrier for receiving a specimen to be investigated in the apparatus. The specimen carrier is penetrable by the beam and is displaceable within the housing transversely to the beam. An adjusting mechanism for effecting the transverse displacement of the specimen carrier is disclosed and includes two pivotally mounted positioning levers having end portions facing the specimen carrier and movable in mutually perpendicular directions. The first positioning lever is rigidly connected to the specimen carrier. A bearing assembly disposed outside the region of the specimen carrier is also provided and includes a pivot bearing for receiving the end portion of the first positioning lever in force-locking engagement therein. The pivot bearing has a center of rotation about which the first positioning lever is pivotable. A displaceable mount accommodates the bearing and the second positioning lever engages the mount for adjusting the displacement of the center of rotation with respect to the particle beam.

3,823,322
PHOTOGRAPHIC FILM HANDLING APPARATUS FOR CHARGED-PARTICLE BEAM EQUIPMENT

Dieter Willasch, Gluckweg; Bernd Schiewe, Uhlandstr, and Volker Rindfleisch, Stanzer, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Nov. 30, 1972, Ser. No. 310,877
Claims priority, application Germany, Nov. 30, 1971, 2160052
Int. Cl. H01j *37/26*; G01n *23/00*
U.S. Cl. 250—469 **5 Claims**

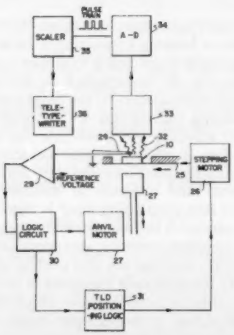


Improved photographic film handling apparatus for use whth charged-particle beam equipment, such as electron microscopes, permits either photographic recording or direct viewing on a picture screen without removing the film handling apparatus from the beam path. The apparatus includes film supply means, a transport mechanism mounted in the beam path, and exposed film storage means. The photographic film, or other picture recording medium, is arranged in consecutive picture areas, each separated by a space sufficient to permit at least part of the charged-particle beam to pass through a matching opening in the transport mechanism for reception by a direct view fluorescent viewing screen or by a television camera for multi-station remote viewing. The recording medium can be either in conventional roll film form, with openings cut in the film between consecutive picture areas, or in plate form, with the plates mounted on a link-type carrier having joints in the regions between the recording plates.

3,823,323
RADIATION DOSAGE MEASURING APPARATUS AND METHOD FOR THERMOLUMINESCENT DOSIMETERS

Alun R. Jones, Deep River, Ontario, and Warren F. Richter, Petawawa, Ontario, both of Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

Filed Nov. 24, 1972, Ser. No. 309,526
Claims priority, application Canada, Jan. 7, 1972, 131908
Int. Cl. G01t *1/11*
U.S. Cl. 250—484 **5 Claims**

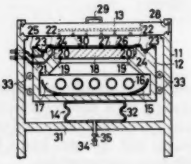


An automatic reading device for thermoluminescent dosimeters wherein the TLD is placed over a heated surface with a thermocouple placed between the side of the TLD away from the heated surface and the end of a light-pipe leading to a photo-multiplier tube or other light measuring device. In this arrangement only the heat that flows from the heater through the TLD to the thermocouple is measured and used for control purpose.

3,823,324
APPARATUS FOR FORMING RELIEF PRINTING PLATE FROM LIQUID PHOTO-SENSITIVE RESIN

Kaname Watabe, Osaka, Japan, assignor to Teijin Limited, Osaka, Japan

Filed Mar. 20, 1973, Ser. No. 343,022
Claims priority, application Japan, Apr. 1, 1972, 47-32856
Int. Cl. H01j *37/00*
U.S. Cl. 250—492 **7 Claims**

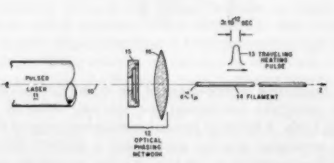


The present apparatus comprises a hollow structure closed with a transparent glass plate under which a source of ultraviolet rays is provided, the hollow structure having a first space surrounding the glass plate and a second space at the outside of the first space. Spacer provided adjacent to the first space, the upper surface of the spacer means being on a level slightly higher than that of image bearing negative placed upon the glass plate except at some portions forming excessive resin discharge ports; vacuum suction means for a cover film placed upon a negative and extending over the second space, the suction means being communicated with the first and second spaces; a pressing board adapted to abut against a supporting base plate of a liquid photo-sensitive resin when the hollow structure is moved up; and means for discharging a predetermined amount of the resin upon the cover.

3,823,325
X-RAY LASER

Lowell L. Wood, Simi, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed July 23, 1973, Ser. No. 381,631
Int. Cl. G03b *41/16*
U.S. Cl. 250—493 **6 Claims**



An x-ray laser utilizing rapid flash heating of a filament of intermediate Z material to temperatures of the order of the K-shell binding energy of the material.

3,823,326
METHOD OF AND APPARATUS FOR READING INFORMATION CONTAINED IN CODED FORM

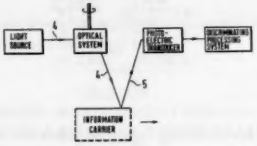
Johann Plockl, Unterhaching, Germany, assignor to Sick, Erwin, Optik-Elektronik, Waldkirch, Germany

Filed Mar. 16, 1973, Ser. No. 342,250

Claims priority, application Germany, Mar. 24, 1972, 2214386; Sept. 15, 1972, 2245235

Int. Cl. G08c *9/06*

U.S. Cl. 250—568 **11 Claims**



Information provided in the form of a linear code of light and dark regions is provided on an information carrier and the carrier is passed through the path of a circulating light beam which is reflected by the code to a photo-electric transducer providing an output to an electronic discriminating processing system which is programmed to identify the code.

3,823,327
ARRANGEMENT FOR SYMMETRICALLY DISTRIBUTION LOAD TO ELECTRICAL MACHINES OPERATED IN PARALLEL

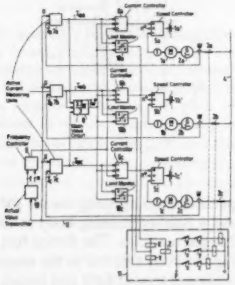
Karl-Heinz Bayer, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Dec. 18, 1972, Ser. No. 315,865

Claims priority, application Germany, Dec. 21, 1971, 2163397

Int. Cl. H02j *1/10*

U.S. Cl. 307—58 **5 Claims**



An arrangement is disclosed for symmetrically distributing load to parallel operated electrical machines such as direct-current to alternating current converters, inverters of an interruption-free power supply installation or the like. A plurality of current controllers corresponding to respective ones of the machines is provided. Each controller has at least two inputs for respectively receiving an actual value signal indicative of the actual machine current of the corresponding electrical machine and a reference signal indicative of the mean value of the individual actual machine currents. An improvement of the stability is thereby achieved, particularly when individual machines are connected and disconnected during operation. Automatic monitoring and equipment for disconnecting faulty machines without interruption of the current supply to the consumer can also be provided.

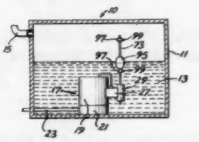
3,823,328
LIQUID LEVEL CONTROL SYSTEM AND SWITCH ASSEMBLY THEREFOR

William Forbes Barton, Arlington Heights, Ill., and William E. Reese, Mansfield, Ohio, assignors to Grigsby Barton, Inc., Rolling Meadows, Ill. and Peabody Barnes, Inc., Mansfield, Ohio

Filed Nov. 17, 1972, Ser. No. 307,647

Int. Cl. H01h *5/02*

U.S. Cl. 307—118 **11 Claims**



A liquid level control system which includes a reed switch actuating assembly having a magnet movable in response to a change in liquid level to effect opening and closing of reed switch contact elements. Pole pieces are positioned at opposite ends of the travel stroke of the magnet and effect snap-action movement of the magnet as it approaches either of the pole pieces, the pole pieces serving to establish magnetic latching of the magnet until a predetermined force is applied thereto to separate the magnet from the associated pole piece. The magnet is connected to a float or the like for movement in response to a change in liquid level within a tank to effect energizing of pump means.

3,823,329
SWITCHING MECHANISM

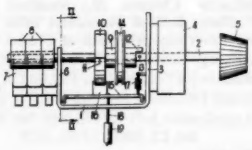
Alan Reginald Crook, and Norman Lumsden, both of Peterborough, England, assignors to British Domestic Appliances Limited, Peterborough, England

Filed Dec. 19, 1972, Ser. No. 316,507

Claims priority, application Great Britain, Dec. 29, 1971, 60619/71

Int. Cl. H01h *7/00*

U.S. Cl. 307—141 **18 Claims**

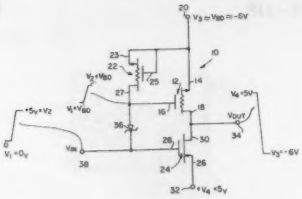


A switching mechanism has a member rotatable from an 'off' position to one or more angular positions in which switch contacts are operated to control the energization of an electric motor driving the clothes drum of a tumbler dryer. The switch contacts may also control the energisation of gas or electric heating elements of the tumbler dryer. A spiral spring is arranged to quickly return the rotatable member to the 'off' position when a door giving access to the clothes drum is opened, thus de-energizing the electric motor and the heating elements. The rotation of the rotatable member may be arranged to wind a clockwork motor which drives the rotatable member slowly back to the 'off' position and thus governs the period of energisation of the electric motor. Alternatively the period of energisation may be governed by temperature sensitive switching means arranged to make and break the energising circuit of the electric motor in accordance with the temperature of air heated by the heating means.

3,823,330
CIRCUIT FOR SHIFTING AND AMPLIFYING INPUT VOLTAGES

A. Karl Rapp, Beverly, N.J., assignor to Inselek Inc., Princeton, N.J.

Filed Jan. 18, 1973, Ser. No. 324,580
Int. Cl. H03k 19/40
U.S. Cl. 307—214 18 Claims

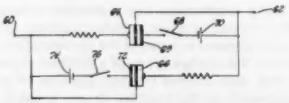


A circuit for shifting and amplifying input voltages includes a p-channel enhancement-type FET and an n-channel deep-depletion type FET which are adapted to be alternatingly rendered conductive and nonconductive. A first source of reference potential is connected to the n-channel deep-depletion type FET and a second source of reference potential is connected to the p-channel enhancement-type FET, which sources of reference potential are adapted to be coupled to an output terminal when their respective FETs are rendered conductive. A breakdown voltage device and a second n-channel deep-depletion type FET are provided, according to one embodiment of the invention, and are arranged such that the second FET acts as a current source to break down the breakdown device. The breakdown device thereby properly translates the input voltage, applied at the input of the circuit, to appropriate levels to control the p-channel enhancement-type FET and the first n-channel deep-depletion type FET. According to another embodiment of the invention, another p-channel enhancement-type FET is provided in order to pull up the input voltage.

3,823,331
BI-DIRECTIONAL ARRANGEMENT OF AMORPHOUS ELECTRONIC CONTROL DEVICES

Hellmut Eritzsche, Chicago, Ill.; Stanford R. Ovshinsky; Robert F. Shaw, both of Bloomfield Hills, Mich.; Marvin Silver, and Pavel Smejtek, both of Chapel Hills, N.C., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Continuation-in-part of Ser. Nos. 139,004, April 30, 1971, abandoned, and Division of Ser. No. 184,179, Sept. 27, 1971.
This application July 9, 1973, Ser. No. 377,415
Int. Cl. H03k 17/00, 3/26
U.S. Cl. 307—241 1 Claim

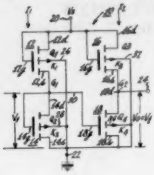


An electrical circuit comprising a pair of three terminal electronic control devices connected in back-to-back relation, each current control device comprising a body of essentially amorphous, semiconducting material defining a primary current path, and a voltage controlled electron emitter interfaced with the body through a thin electrode and an insulator layer to selectively vary the conductivity of the body of injecting high energy charge carriers into the body through the electrode.

3,823,332
MOS FET REFERENCE VOLTAGE SUPPLY

Rubin Feryszka, Somerville, and Joseph Otto Preisig, Trenton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jan. 30, 1970, Ser. No. 7,148
Int. Cl. H03k 1/12
U.S. Cl. 307—297 8 Claims

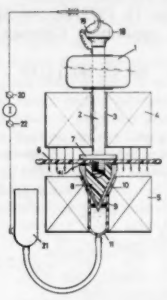


A means for obtaining regulated reference supply voltages substantially at one or more integral multiples of the threshold voltage (V_t) of field effect transistors fabricated completely with field-effect-transistors on a single monolithic integrated circuit chip.

3,823,333
HALL-VOLTAGE DEVICE

Ferdinand Hubert Franciscus Gerardus Spierings, Asserpark 11, Wageningen, Netherlands

Filed Aug. 9, 1972, Ser. No. 279,083
Claims priority, application Netherlands, Aug. 10, 1971, 7111003
Int. Cl. G21d 7/02
U.S. Cl. 310—11 4 Claims



A Hall-voltage device comprising means for generating a magnetic field and a fluid-containing body in this field, which fluid contains charged particles. The device further comprises means for moving the body relative to the magnetic field in a plane essentially normal to said field and means for collecting and measuring the Hall-voltage produced in the body upon such a movement, the latter means consisting of two electrodes connected to spaced apart points of the fluid.

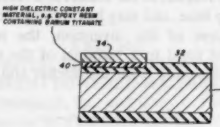
3,823,334
ELECTRICAL APPARATUS WITH HIGH VOLTAGE ELECTRICAL CONDUCTOR INSULATED BY MATERIAL INCLUDING HIGH DIELECTRIC CONSTANT INSERTS

Harold M. Philofsky, Pittsburgh, Pa., and Pravin A. Sanghavi, Bombay, India, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 18, 1973, Ser. No. 380,330
Int. Cl. H02k 3/40
U.S. Cl. 310—196 5 Claims

A high voltage, insulated conductor for electrical equipment such as dynamoelectric machines where non-uniform

electric stresses occur. The insulation has inserts of a material of high dielectric constant incorporated in the insulation in regions of maximum stress to change the stress distribution in a manner to reduce the maximum stress.



3,823,335

ELECTRODE ARRANGEMENT SERVING TO ACCELERATE A CHARGE CARRIER BEAM IN A VACUUM

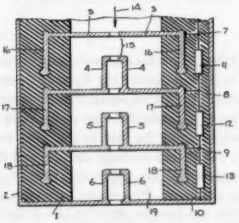
Wilhelm Scheffels, Germering, and Ruprecht Hoffmann, Grobenzell, both of Germany, assignors to Steigerwald Strahltechnik GmbH, Munich, Germany

Filed June 18, 1971, Ser. No. 154,510

Claims priority, application Germany, June 23, 1970, 2030747

Int. Cl. H01j *31/02*; **H01j** *29/46*

U.S. Cl. 315—15 **15 Claims**



An electrode assembly for accelerating charge carriers in a charge carrier beam includes acceleration electrodes fixedly mounted inside an evacuable chamber formed by an insulating body and a surrounding enclosure. A supplementary conductor element is embedded within the walls of the insulating body, in a fashion in which it substantially encircles, or circumscribes, both the acceleration path and also at least in part the acceleration electrodes. The supplementary conductor is conductively connected to one of the electrodes which it circumscribes, thus maintaining electrode and supplementary conductor at the same electric potential.

3,823,336

SHADOW MASK SUPPORT STRUCTURE INCLUDING A PLURALITY OF BIMETALLIC ELEMENTS FOR EACH LEAF SPRING

Hiroto Nakamura, Takatsuki; Ken-Ichi Doi, Kobe; Akira Sato, Takatsuki, and Yushin Suzuki, Amagasaki, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

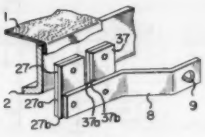
Division of Ser. No. 19,945, March 16, 1970, Pat. No. 3,660,708. This application Feb. 10, 1972, Ser. No. 225,307

Claims priority, application Japan, Mar. 19, 1969, 44-21833; Mar. 19, 1969, 44-21834

Int. Cl. H01j *29/06, 31/20, 29/08*

U.S. Cl. 313—85 S **1 Claim**

In a shadow mask support means comprising a bi-metal piece having one end secured to a shadow mask frame with the other end left free, and a leaf spring secured at one end to said free end of the bi-metal piece and extending therefrom toward a pin provided on a side wall of a face panel, the improvement residing in that a metallic plate portion disposed between said frame and said spring is so arranged that it is displaced due to thermal deflection of the bi-metal at the end adjacent to said pin by an amount smaller than the displacement at the opposite end.



3,823,337

CATHODE FOR AN ELECTRIC DISCHARGE TUBE

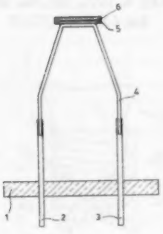
Antonius Johannes Alberta van Stratum; Pieter Zalm, both of Emmasingel Eindhoven, and Niranjan Kumar Mitra, Best, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 25, 1973, Ser. No. 363,877

Claims priority, application Netherlands, May 30, 1972, 7207276

Int. Cl. H01j *1/14, 19/06*

U.S. Cl. 313—346 **2 Claims**



A cathode suitable for poor vacuum conditions and repeated exposures to air consists of a molybdenum support, compact or compressed powder, welded on a tungsten wire and having thereon a compressed mixture of rhenium with lanthanum hexaboride. Instead of rhenium, a tungsten boride such as W_2B or W_2B_5 may be chosen.

ERRATUM

For Class 315—15 see:
Patent No. 3,823,335

3,823,338

CATHODE-RAY TUBE NON-LINEARITY CORRECTION CIRCUIT

John I. Garrett, Ogallala, Nebr., assignor to Honeywell Inc., Minneapolis, Minn.

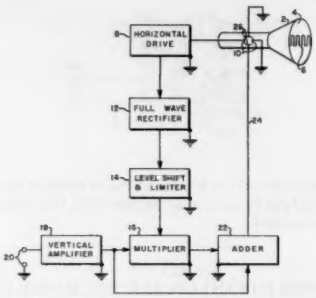
Filed Oct. 3, 1972, Ser. No. 294,604

Int. Cl. H01j *29/70*

U.S. Cl. 315—276 D **6 Claims**

A non-linearity, or barrel-effect, distortion of a cathode-ray tube display is corrected by deriving a first input signal for a multiplier circuit from a horizontal ramp signal by a full-wave rectification and level-shifting process to extract two predeter-

mined portions of the ramp signal connected by a zero level signal. The first input signal is multiplied by a second input



signal obtained from a vertical drive signal for the cathode-ray tube, and the resulting product signal is added to the original vertical drive signal to obtain a modified vertical drive signal.

3,823,339

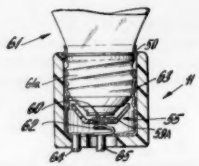
DIODE RECTIFIER SOCKETED ELECTRICAL DEVICES AND DIODE RECTIFIERS THEREFOR

Edmond H. Borneman, Short Hills, and John L. Galvagni, Cedar Grove, both of N.J., assignors to Electronic Laboratories International, Inc., Cedar Grove, N.J.

Filed Oct. 4, 1972, Ser. No. 294,945

Int. Cl. H05b *37/02*

U.S. Cl. 315—69 **9 Claims**



This electrical device comprises an electrically operated article, such as a lamp, which has a base that fits into a socket. The electrical connection from the socket to the electrically operated article is made through a diode rectifier. The rectifier is a semi-conductor. The purpose of the rectifier is to change the voltage of the electrically operated article from A.C. to D.C. current with the top halves of the alternating waves cut off and at the same time to reduce the temperature and extend the life of the article. In case of a lamp, its life is lengthened because the filament will evaporate more slowly and retard darkening of the bulb, thereby reducing replacement costs. To get the same lumens as is normal for a lamp of a predetermined wattage and without the rectifier, the rectified lamp must be of a higher nominal wattage. The rectifier is a chip that comprises a semi-conductor between metal contacts or metalized contacts and with the edges of the semiconductor protected by insulation material which integrates the parts of the rectifier into a unit. The rectifier is in the socket and between a terminal of the article and a terminal of the socket. Said unit is removable from at least one of them. The unit is in electrical contact with said terminals, and may be fixed either to the article terminal or to the socket terminal, but not to both. In any event, the unit is outside of the conductive systems of the electrically operated article and outside the conductive system of the socket, and serves to connect them in series circuit. In one form of the invention the rectifier unit is fixed to the central bottom contact of a lamp base or to a terminal of the lamp base. In another form of the invention, the rectifier unit is fixed to a pair of terminals of the lamp base connecting a pair of filaments in the lamp in parallel. In yet another form of the invention the unit is on an insulator flange centralized with respect to the socket and removable from the socket and lamp base, and may be dropped into the socket. In still another form of the invention, the rectifier unit is mounted on and fixed to a terminal of the socket, and the lamp base is removable from the socket and out of contact with said unit.

3,823,340

CIRCUIT FOR GENERATING A SAWTOOTH-SHAPED CURRENT THROUGH A COIL BY COMPENSATING FOR DEFLECTION COIL RESISTANCE

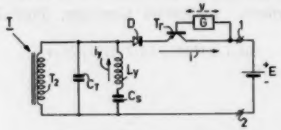
Peter Ketelaar, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 12, 1973, Ser. No. 332,010

Claims priority, application Netherlands, Feb. 19, 1972, 7202214

Int. Cl. H01j *29/70*

U.S. Cl. 315—27 GD **10 Claims**



A deflection circuit in which a switching element, for example, a thyristor is driven during the flyback period. During the scan a diode automatically becomes conducting so that a constant direct voltage is applied to the deflection coil. An additional source which may be for example a transistor is included between the direct voltage source and the diode, thus enabling the linearity to be improved and/or the East-West correction to be achieved. In a picture display apparatus having an index tube the source may be the output of a control circuit for stabilizing the index frequency.

3,823,341

MAGNETIC BLAST ALTERNATING CURRENT CIRCUIT INTERRUPTER COMPRISING A RECTIFYING ARC EXTINCTION CIRCUIT

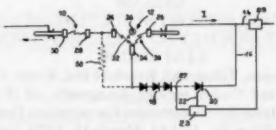
Yves Pelenc, La Tronche, and Georges Bernard, Saint-Egreve, both of France, assignors to Merlin Gerin, Grenoble, France

Filed Mar. 23, 1973, Ser. No. 344,204

Claims priority, application France, Mar. 28, 1972, 72.10942; Dec. 18, 1972, 72.45142; Mar. 6, 1973, 73.04228

Int. Cl. H02h *7/22*

U.S. Cl. 317—11 A **21 Claims**



An alternating current circuit interrupter comprising separable contacts to draw an arc and at least one auxiliary shunt path including series connected rectifiers and a controlled rectifier which can be triggered shortly before current zero in the appropriate current half-cycle. A terminal electrode of the shunt path is disposed adjacent the contacts and magnetic blast means to blow the arc against the electrode only when the current has the instantaneous direction corresponding to the conducting sense of the rectifiers to switch

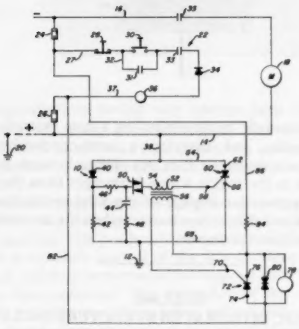
the current to the shunt path. Means may be provided to prevent the stagnation of the arc roots and to permit commutation of the current during any half-cycle to a single or to a double shunt path.

3,823,342

VOLTAGE PROTECTION CIRCUITRY FOR DIRECT CURRENT POWERED MACHINERY

John F. Burr, Pittsburgh, Pa., and Gary L. Powell, Fairmont, W. Va., assignors to Consolidation Coal Company, Pittsburgh, Pa.

Filed June 25, 1973, Ser. No. 373,130
Int. Cl. H02h 7/09
U.S. Cl. 317—13 R **9 Claims**



A diode and a current limiting resistor are serially connected between a grounded electrical conductor and the frame portion of an electrically operable machine supplied with direct current power from a remote power source through trailing conductors connected to the machine load. The diode is operable to prevent the frame from being raised to the full-line voltage of the power source in the event the polarity of the conductors is reversed. The current limiting resistor limits the flow of current, caused by transient voltages appearing on the frame, to an intrinsically safe level. A capacitor and a plurality of resistors arranged in parallel circuit relation with the current limiting resistor monitor the existence of a fault voltage appearing thereacross. When the capacitor receives a charge of a predetermined magnitude, a diac serially connected to the capacitor conducts current therethrough to the gate terminal of a first silicon controlled rectifier. The first silicon controlled rectifier switched to a conductive state provides a direct path for the flow of current from the frame to the grounded conductor. A second silicon controlled rectifier, switched to a conductive state upon actuation of the first silicon controlled rectifier, deenergizes a relay to thereby terminate operation of the machine and signal the condition of fault voltage applied to the frame.

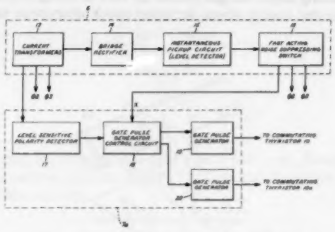
3,823,343

COMMUTATION DIRECTING CIRCUIT FOR FAULT CURRENT LIMITING STATIC SWITCH

Floyd L. Steen, Lansdowne, Pa., assignor to General Electric Company, Philadelphia, Pa.

Filed Sept. 29, 1970, Ser. No. 76,446
Int. Cl. H02h 3/08, 7/14
U.S. Cl. 317—20 **6 Claims**

Circuitry for directing commutation in an inverse parallel connected power thyristor switch including selectively operable commutation circuits for interrupting a fault current in response to a stop signal from an overcurrent detector. The directing circuitry monitors current flowing through the



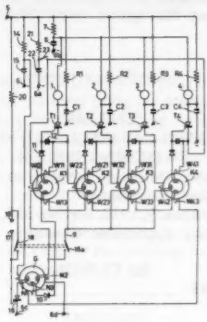
switch to determine its direction and enables the stop signal to actuate the commutation circuit associated with the fault current conducting thyristor.

3,823,344

ARRANGEMENT PROVIDED WITH AT LEAST TWO COMBUSTION FLASH BULBS

Pal Geza Havas, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed June 4, 1973, Ser. No. 366,445
Claims priority, application Netherlands, June 17, 1972, 72.8320
Int. Cl. F23q 7/02
U.S. Cl. 317—80 **8 Claims**



The invention relates to an arrangement for the successive ignition of at least two combustion flash bulbs in which each bulb is arranged in series with a thyristor. The invention provides a solution for rendering the thyristors conducting with the aid of a shift register which is provided with cores of a magnetic material having a substantially rectangular hysteresis loop.

3,823,345

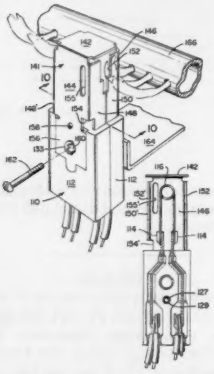
ELECTRIC IGNITER CONSTRUCTION

Richard K. Mitts, 300 Cienaga Dr., Fullerton, Calif. 92635; Wilbur F. Jackson, 27352 Rainbow Ridge Rd., Rolling Hills, Calif. 90274, and James R. Willson, 9342 Bixby Ave., Garden Grove, Calif. 92641

Continuation of Ser. No. 107,767, Jan. 19, 1971, abandoned, which is a continuation-in-part of Ser. No. 807,509, March 17, 1969, Pat. No. 3,562,590. This application Dec. 27, 1972, Ser. No. 318,791
Int. Cl. F23q 7/10
U.S. Cl. 317—98 **14 Claims**

An electric igniter assembly including a casing in which the major length of the igniter element is enclosed so that only a

small portion is disposed in proximity to a gas burner; the electrical connectors for the igniter element and the electrodes that are attached to power leads are disposed remote from the flame issuing from the gas burner as well as being fixedly supported in the casing which includes shock absorbent material



to reduce possibilities of breakage of the igniter element. A shield mounted upon the casing surrounds the igniter element so as to readily enable direct ignition of the gas burner and thereafter protect the igniter from direct burner flame impingement.

3,823,346

COMPRESSED-GAS-INSULATED ELECTRIC SWITCHING SYSTEM

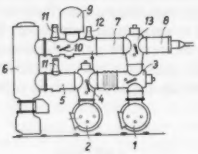
Willi Olsen, Berlin, Germany, assignor to Seimens Aktiengesellschaft, Munich, Germany

Filed Jan. 9, 1973, Ser. No. 322,209

Claims priority, application Germany, Jan. 20, 1972, 2203102

Int. Cl. H02b

U.S. Cl. 317—103 **5 Claims**



An electric high-voltage switching system of the metal-clad compressed-gas-insulated type has two bus bars individually connected through bus bar disconnect switches with a power circuit breaker from which a branch line is supplied with current. An additional disconnect switch connects at least one of the bus bar disconnect switches on its side connected with the bus bar, with the branch line. Closing of this additional disconnect switch permits the branch line to remain powered when the bus bar disconnect switch is opened and/or the power circuit breaker is opened.

3,823,347

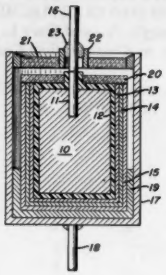
SOLID ELECTROLYTIC CAPACITOR

Steven Karlik, Jr., Palm Beach Gardens, Fla., assignor to National Components Industries, Inc., West Palm Beach, Fla.

Filed Apr. 19, 1972, Ser. No. 245,520

Int. Cl. H01g *9/05, 9/10*

U.S. Cl. 317—230 **1 Claim**



A solid electrolytic capacitor having a stem extending from a porous anode and carrying a semi-conductive layer deposited over a dielectric film. An inorganic mask is placed over the stem in the region where it emerges from the anode, which mask prevents creepage of the semi-conductive layer onto the stem and also, serves to strengthen the area where the stem emerges from the anode.

3,823,348

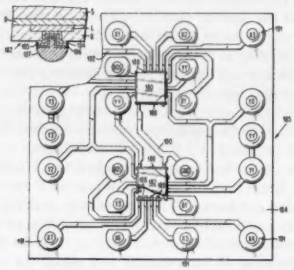
MONOLITHIC INTEGRATED STRUCTURE INCLUDING FABRICATION AND PACKAGE THEREFOR

Benjamin Agusta; Paul H. Bardell; Paul P. Castrucci, all of Poughkeepsie; Robert A. Henle, Hyde Park, and Raymond P. Pecoraro, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 539,210, March 31, 1966, Pat. No. 3,508,209. This application Apr. 16, 1970, Ser. No. 33,119

Int. Cl. H01l *5/00*

U.S. Cl. 317—234 R **3 Claims**



A monolithic integrated semiconductor structure is described that has a plurality of functionally isolated individual cells that are electrically interconnected. Each of the cells is an object or mirror image cell that is vertically, horizontally and diagonally displaced from the object cell. The plurality of cells provide a memory array with electrical components of each memory cell composed of active and passive semiconductor devices. Other important aspects of the structure include underpass connections and active devices in a common portion of the structure which are electrically interconnected at the same node potential by means of a highly doped buried region within the common portion of the struc-

ture. In particular, a sophisticated packaging scheme for containing such a highly complex array of memory cells is disclosed.

3,823,349

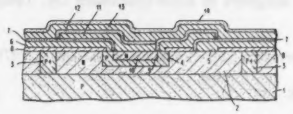
INTERCONNECTION METALLURGY SYSTEM FOR SEMICONDUCTOR DEVICES

Vir A. Dhaka, Hopewell Junction, and Andrew F. Kozik, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 4,966, Jan. 22, 1970, Pat. No. 3,681,147. This application May 17, 1972, Ser. No. 254,322

Int. Cl. H01l *7/00*

U.S. Cl. 317—234 R **4 Claims**



Semiconductors having very narrow base widths can be fabricated by using ion implantation through the contact metallization as a mask, then expanding and passivating the metallization by anodization so as to protect the semiconductor junction.

Aluminum metallization has predictable expansion characteristics as it oxidises or is anodized, and the oxide has insulating properties. This predictable expansion of aluminum oxide permits a dynamic control of the size and shape relationship between adjacent semiconductive regions such as emitter and base or base-collector. The expansion of the contact metallization provides a mask opening with closely corresponding dimensions and permits very close control of narrow semiconductor regions.

3,823,350

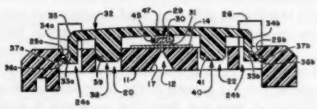
PROTECTIVE CARRIER FOR SEMICONDUCTOR CHIPS

Charles L. Stoner, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Atomic Energy Commission, Washington, D.C.

Filed Sept. 5, 1973, Ser. No. 394,585

Int. Cl. H01l *3/00, 5/00*

U.S. Cl. 317—234 R **4 Claims**



A protective carrier for microcircuit devices, e.g., semiconductor chips, having beam leads is described, wherein a cover retains the chip such that its beam leads are in electrical contact with electrically conductive leads of a base so that the chips may be readily handles and tested while so retained.

3,823,351

SEMI-CONDUCTOR AND HEAT SINK FIN ASSEMBLY

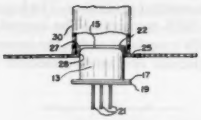
Arthur E. Chambers, Grosse Isle, Mich., assignor to Carbidex Corporation, Southgate, Mich.

Continuation-in-part of Ser. No. 291,898, Sept. 25, 1972, abandoned. This application Sept. 6, 1973, Ser. No. 394,734

Int. Cl. H01l *3/00, 5/00*

U.S. Cl. 317—234 R **1 Claim**

A semi-conductor is housed within a metallic can closed at its top and having a base flange and one or more heat sink fins. Each heat sink fin includes a flexible metallic heat conductive body 0.005 inch thick of disc-shape, centrally apertured and



snugly and frictionally mounted over said can. Each fin includes a central annular flange. The fins and flanges in registry for uniform spacing.

3,823,352

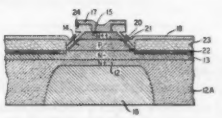
FIELD EFFECT TRANSISTOR STRUCTURES AND METHODS

Bernard Roger Pruniaux, Conflan St. Honorine, France; Terence James Riley, Warren; Robert Morgan Ryder, Summit, both of N.J., and Herbert Atkin Waggener, Allentown, Pa., assignors to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed Dec. 13, 1972, Ser. No. 314,785

Int. Cl. H01l *11/00;* B01j *17/00*

U.S. Cl. 357—23 **13 Claims**



A field effect transistor is made in a mesa configuration with the top portion of the mesa being the source region and with the limits of the gate electrode being defined by a shadow mask that overhangs part of the mesa. A drift region layer of moderately high resistivity is included between the transistor channel region and the drain region and constitutes the upper wafer substrate surface from which the mesa extends. A thin implanted layer in the upper surface of the drift region layer limits the extent of the channel in the mesa, and a thick oxide over the drift layer reduces the coupling from the gate electrode to the drift region.

3,823,353

MULTI LAYERED VERTICAL TRANSISTOR HAVING REACH-THROUGH ISOLATING CONTACTS

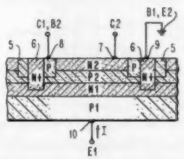
Horst H. Berger, Sindelfingen, and Siegfried K. Wiedmann, Stuttgart, both of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 2, 1973, Ser. No. 337,510

Claims priority, application Germany, Mar. 14, 1972, 22121682

Int. Cl. H01l *11/00, 15/00*

U.S. Cl. 357—40 **6 Claims**



Logic circuits for performing the INVERTER and NOR functions, and monolithic integrated structures for realizing

the circuits. The basic circuit comprises PNP transistor and an NPN transistor. The emitter of the PNP transistor has its base grounded and its collector connected to the base of the NPN transistor having its emitter grounded. The logic signal input is at the base of the NPN transistor. The output is taken at the collector of the NPN transistor and is the inverse of the input. Two such basic circuits are interconnected to provide the NOR function.

3,823,354

HALL ELEMENT

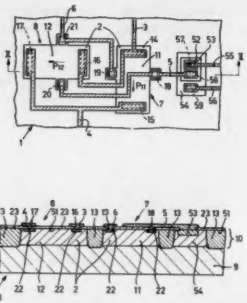
Johannes Hendrikus Hubertus Janssen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 29, 1973, Ser. No. 364,892

Claims priority, application Netherlands, June 1, 1972, 727395

Int. Cl. H01l *17/00*

U.S. Cl. 317—235 R **9 Claims**



The invention relates to a semiconductor device having a Hall element. In order to reduce the offset voltage between the connection contacts for deriving the Hall signals and in order to increase the stability, the Hall element shows a number of sub-Hall elements which are arranged parallel to each other. The Hall bodies of the sub-Hall elements, viewed on the surface of the semiconductor body, are situated beside each other in the semiconductor body and show different directions of current. The semiconductor body may be constituted by an epitaxial layer of n-type silicon on a substrate of p-type silicon. The Hall element may be manufactured by using methods which are generally known in manufacturing integrated circuits.

3,823,355

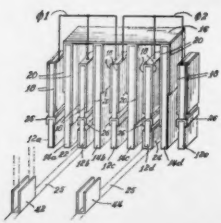
CONTACTLESS SWITCH DEVICE

James E. Batz, Northbrook, Ill., assignor to Northern Illinois Gas Company, Aurora, Ill.

Filed Nov. 12, 1971, Ser. No. 198,305

Int. Cl. H01g *5/14*

U.S. Cl. 317—246 **11 Claims**



A contactless switch device for coupling one or more electrical input signals of predetermined phase to an output sensing circuit wherein a plurality of parallel spaced insulating members are movable relative to each other upon depressing a control plate and have electrical conductive surface areas selectively disposed thereon. Excitation signals of predetermined phase are directly connected to selected of the conductive surface areas and are capacitive coupled to sensor elements upon depressing the control plate, electrostatic shield means minimizing coupling of the signals to the sensor elements when the control plate is in its normal nondepressed position.

3,823,356

CONTROL SYSTEM FOR CAR WASHING MACHINES

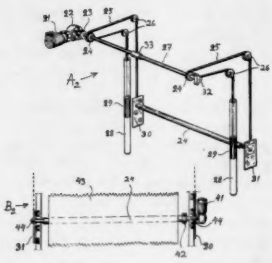
Jorma Paavola, Helsinki, and Lasse Julita, Tampere, both of Finland, assignors to Kone-Lamminen Oy, Tampere, Finland

Filed Sept. 5, 1972, Ser. No. 286,403

Claims priority, application Finland, Sept. 2, 1971, 2464/71

Int. Cl. G05b *13/02*

U.S. Cl. 318—39 **13 Claims**



System for controlling the functions of a car washing machine, having a carriage of portal construction, movably mounted on a base on rails and the like on which the machine performs a washing procedure, moving longitudinally over the car to be washed, the machine being provided with rotatable brushes for washing the top and the side surfaces of the car, said brushes being provided with means controlling the pressure of said brushes against the surfaces of the car being washed, while variations of the pressure are also used to control the longitudinal movements of the machine relative to the car, wherein the forces affecting said brushes are sensed and measured by strain gages, for measuring the strain, torque and elongation on the brushes, and wherein the differences determined by the strain gages are arranged to control the bushing pressure against the car as well as the longitudinal movements of the machine so that the brushing pressure is maintained within preset limits, in spite of varying contours of the car, as well as of the varying mains voltage and other parameters.

3,823,357

STARTING DEVICE FOR A SYNCHRONOUS MACHINE

Jorg Sapper, Windisch, Switzerland, assignor to Brown Boveri & Company Limited, Baden, Switzerland

Filed Jan. 23, 1973, Ser. No. 326,000

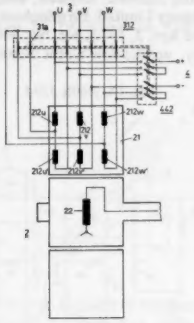
Claims priority, application Switzerland, Feb. 7, 1972, 1685/72

Int. Cl. H02p *1/50*

U.S. Cl. 318—183 **4 Claims**

A starting arrangement for a polyphase synchronous machine includes a polyphase induction machine having a wound rotor which is coupled to the rotor of the synchronous machine for rotation therewith. The rotor winding of the induction machine is closeable through a starting load-circuit, switching means are provided for switching over the stator

winding of the induction machine from its connection to a polyphase alternating current supply source to a direct current excitation, and the rotor winding of the induction machine is connected to the rotor winding of the synchronous machine through a rectifier.

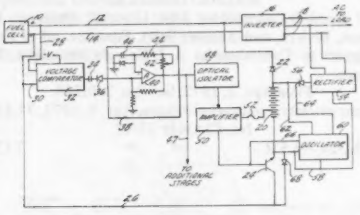


3,823,358

BATTERY PEAKING UNIT FOR FUEL CELL POWER PLANTS

Paul R. Rey, Vernon, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed June 18, 1973, Ser. No. 371,196
Int. Cl. H02j *7/00, 7/34*
U.S. Cl. 320—3 **5 Claims**



An auxiliary storage battery or other DC rechargeable power source is connected in parallel with a fuel cell to supply additional current to a load when an overload such as the starting of a motor causes the fuel cell voltage to drop. The fuel cell voltage is sensed and when it reduces below a preselected value the auxiliary battery supplies current to the load for a preselected time interval. The storage battery is recharged by power supplied by the fuel cell only during periods when the battery is not supplying current to the load. Excessive battery drain is prevented by shutting down the peaking unit whenever fluctuations in the fuel cell voltage cause multiple peaking cycles.

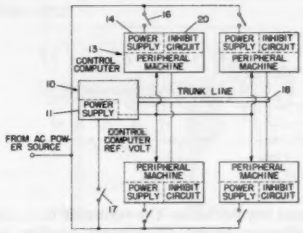
3,823,359

INHIBIT AND RESET CIRCUIT

Charles W. Koeller, Yellow Springs, and Stephen J. C. Chan, Dayton, both of Ohio, assignors to The National Cash Register Company, Dayton, Ohio

Filed Mar. 7, 1973, Ser. No. 338,673
Int. Cl. H02m *1/18*
U.S. Cl. 321—11 **10 Claims**

The circuit of the present invention is used in conjunction with a peripheral machine power supply to control the connection of the peripheral machine to the trunk line of a computer processing unit such that the peripheral machine does not load the trunk line unnaturally during power "on" and "off" transitions. Means are provided for sensing the AC power supplied to the peripheral machine and for providing a signal indicative of the presence or absence of AC power. A delay means receives the provided signal and delays the provided signal for a period of time sufficient to allow the peripheral machine's power supply to reach operating level and for a minimal time in anticipation of the machine's power supply dropping out of its operating level. Means responsive to the delayed signal connects or disconnects the peripheral machine from the trunk line when power operating levels are reached or not reached, respectively.

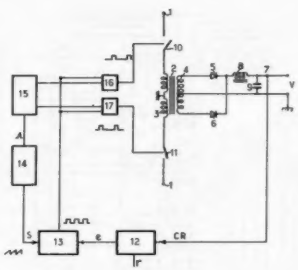


3,823,360

CONTROL CIRCUIT FOR CHOPPED FEEDING

Ludovic Grandin de l'Eprevier, Belfort, and Andre Achille Brecy, Danjoutin, both of France, assignors to Societe Industrielle Honeywell Bull, Paris, France

Filed Dec. 29, 1972, Ser. No. 319,825
Int. Cl. H02m *7/00*
U.S. Cl. 321—18 **6 Claims**



A control circuit is provided for chopped feeding which circuit receives at its inputs an alternating voltage and at its outputs delivers a direct chopped voltage. The choppers are controlled by comparing an error voltage with a sawtooth signal on a fixed frequency generated by a unijunction transistor, whose output is connected to a bistable for channel switching.

3,823,361

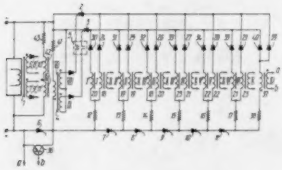
CONTROL DEVICE FOR A REVERSIBLE STATIC FREQUENCY CONVERTER

Vladislav Vasilievich Talov, ulitsa Jubileinaya, 11, kv. 107, and Vladimir Grigorievich Yatsuk, ultisa Pervomaiskaya, 8, kv. 57, all of Istra Moskovskoi oblasti, U.S.S.R.

Filed Sept. 25, 1972, Ser. No. 292,169
Int. Cl. H02m *7/00*
U.S. Cl. 321—27 R **1 Claim**

A control device for a reversible static frequency converter comprising a DC power supply source and connected thereto,

a master generator. a reversible unit with two key thyristors and a push-pull shift register consisting of separate cells each comprising a controlled semiconductor switch, and a thyristor for example, with one electrode connected to the direct and reverse count windings of output pulse transformers of two different cells, the other ends of said windings being con-



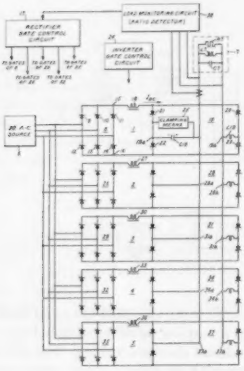
nected to said key thyristors. The reversible unit, comprises a pulse transformer having its primary winding connected between the electrode of the semiconductor switch of the first cell of the shift register and the negative pole of a DC power supply source, the secondary windings being connected via commutation elements to a respective circuit controlling said two key thyristors.

3,823,362

COORDINATED MASTER-SLAVE CONVERTER SYSTEM FOR VARIABLE-POWER TANK LOADS

Ronald B. Bailey, Waynesboro, Va., assignor to General Electric Company, Philadelphia, Pa.

Filed Feb. 2, 1973, Ser. No. 328,894
Int. Cl. H02m *5/44*
U.S. Cl. 321—27 MS **7 Claims**



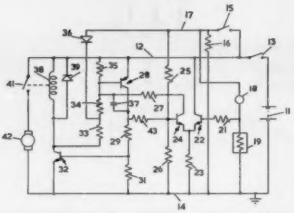
A plural converter system, including parallel-connected current-source inverters, efficiently delivers alternating current to a tank load having variable power requirements. One of these inverters is a master and the remainder are slaves, and each has a maximum power rating and a loading range that is a fraction of the corresponding parameters of the load. The master inverter is started initially to charge the load, and the slaves are selectively controlled in response to the actual power requirement of the load so that the proper converters are running to supply the load demand without exceeding either the maximum unit rating or the limited range of any individual converter.

3,823,363

COOLING FAN OPERATING CIRCUITS FOR ROAD VEHICLES

William Frank Hill, Stafford, England, assignor to The Lucas Electrical Company Limited, Birmingham, England

Filed Apr. 2, 1973, Ser. No. 346,883
Claims priority, application Great Britain, Apr. 7, 1972, 16056/72
Int. Cl. B60h *3/04*
U.S. Cl. 322—3 **3 Claims**



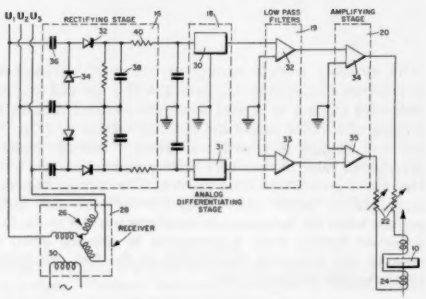
A cooling fan for a road vehicle is operated in accordance with water temperature by sensing a potential close to a temperature gauge. This potential fluctuates by virtue of a vibrating contact voltage regulator used in the circuit, and a memory arrangement is used so that the operating of the circuit is independent of the regulator.

3,823,364

METHOD AND DEVICE FOR PROVIDING COMPENSATION FOR GYROMAGNETIC EFFECT IN YAWING MOTION OF CRAFT-CARRIED TOTAL-FIELD MAGNETOMETERS

Michel Cordelle, Grenoble; Jean Crescini, Domeng; Henri Glenat, Biviers, and Antoine Salvi, Fontaine, all of France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed Apr. 3, 1972, Ser. No. 240,540
Claims priority, application France, Apr. 9, 1971, 71.12816
Int. Cl. G01r *33/08*
U.S. Cl. 324—0.5 R **7 Claims**

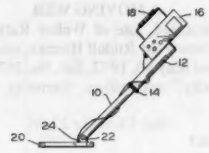


The method and the device provide compensation for the gyromagnetic effect which is sustained by a total-field magnetometer having a sensing winding and which arises from angular movements performed about a given direction by a craft which carries the magnetometer. An electric signal is produced and the intensity of said signal is proportional to the angular velocity of the craft about said direction. A correction which is proportional to the signal and takes into account the angle made by said direction with the lines of force of the field to be measured is made in the indications supplied by the magnetometer.

3,823,365
METAL DETECTING APPARATUS HAVING IMPROVED GROUND-EFFECT IMMUNITY

Sherman D. Anderson, Rt. 3, Box 539, Klamath Falls, Oreg. 97601

Filed Jan. 24, 1973, Ser. No. 326,515
Int. Cl. G01v 3/10
U.S. Cl. 324—3 16 Claims

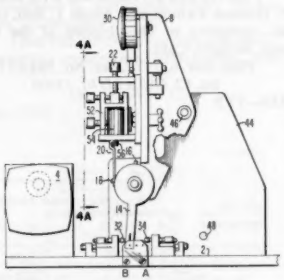


A BFO metal detector includes a support for carrying a search coil and plural compensating coils which prevent ground effects from changing the beat frequency output. The search coil forms part of a tuned circuit of a first oscillator while plural compensating coils form part of a tuned circuit of a second oscillator, the frequency of which is far enough removed from that of the first oscillator to prevent lock-in. The output of one or both of the oscillators is suitably converted to a frequency close enough to the remaining frequency to provide an audible beat.

3,823,366
SYSTEM FOR TESTING SOLENOID RESPONSE TIME UNDER LOAD AND HOLDING POWER UNDER INCREASING LOAD CONDITIONS

Donald F. Fabry, Garden City, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Mar. 26, 1973, Ser. No. 345,181
Int. Cl. G01r 31/02
U.S. Cl. 324—28 R 17 Claims

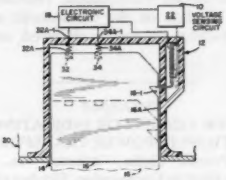


Solenoids of varying specifications may be tested for push or pull in either a horizontal or a vertical position by means of this system. Included within the test system are: a fixture for receiving solenoids of varying dimensions, a magnetic clutch to transmit the torque of a motor into a test load for the solenoid, circuitry to control the testing of the solenoid, and circuitry responsive to the test environment to automatically determine whether the solenoid has passed or failed predetermined test specifications. The solenoid is first tested for time response under load and then is tested for holding power under an increasing load. These tests are performed automatically and in addition indicating lights are provided to indicate to an operator whether the solenoid has passed or failed the tests.

3,823,367
BATTERY PACKAGE WITH END OF LIFE CONDITION INDICATOR

Gordon E. Kaye, Garrison, and George Sussingham, Mount Vernon, both of N.Y., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Filed Sept. 4, 1973, Ser. No. 393,766
Int. Cl. H01m 31/04; G01n 27/42
U.S. Cl. 324—29.5 10 Claims

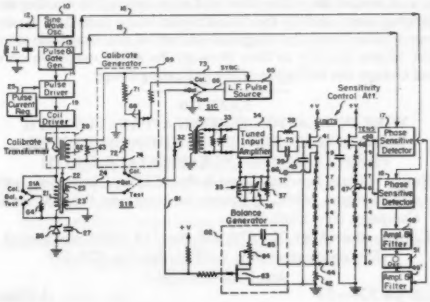


A battery pack for small portable and hand-operable devices, arranged to be detent-locked in operating position so long as the battery voltage exceeds minimum satisfactory operating value for the device and to be released and ejected, partially for visible indication, when battery voltage drops below minimum satisfactory operating value.

3,823,368
CALIBRATION AND BALANCE SYSTEM IN PULSE EDDY CURRENT TESTING APPARATUS

Sven E. Mansson, Hollviksnas, Sweden; Robert A. Brooks, Rye, and Paul J. Bebick, Bronx, both of N.Y., assignors to Magnetic Analysis Corporation, Mount Vernon, N.Y.

Filed May 8, 1973, Ser. No. 358,359
Int. Cl. G01r 33/12
U.S. Cl. 324—40 11 Claims



The pulse eddy current testing apparatus includes test coil means having a primary winding(s) supplied with driving pulses, and a pair of secondary windings in series opposition for producing output signals varying with defects or flaws in objects under test. The output signals are supplied to an input transformer and tuned amplifier, and then through an attenuator to a pair of phase-sensitive detectors. The quadrature outputs of the detectors are supplied to an oscilloscope for indicating the amplitude and phase of the signals supplied thereto. The calibration and balance check apparatus includes a low frequency pulse source, a calibrate transformer having a primary in series with the primary winding(s) of the test coil means, a calibrate generator for receiving the outputs of the calibrate transformer and the low frequency pulse source to produce a modulated calibration check signal, and a balance generator for connection to the output circuit of the tuned

amplifier and the low frequency pulse source for producing a modulated balance check signal. Switchable means in the calibration condition connects a low impedance across the primary winding(s) of the test coil means, disconnects the secondary windings from the input transformer, and supplies the calibration check signal to the input transformer to produce a calibration check indication on the oscilloscope. For balance check the test coil means is connected to the input transformer, and the balance check signal is supplied through the attenuator to the detectors to produce a balance check indication on the oscilloscope. Provision is made to standardize the displays on the oscilloscope so that proper calibration and balance are readily observed, and adjustments facilitated.

3,823,369

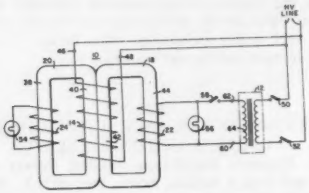
TRANSFORMER TESTER FOR INDICATING SHORTED CONDITIONS IN POWER TRANSFORMERS

Ram Ratan Prasad Sinha, Athens, Ga., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 24, 1972, Ser. No. 247,166

Int. Cl. G01r *31/02, 31/06*

U.S. Cl. 324—51 **1 Claim**



Test apparatus for determining the condition of a transformer. An input winding is disposed around two magnetic cores. An output winding is wound around one core and is connected to an indicating lamp. Another output winding is wound around the other core and is connected to another indicating lamp and to the transformer being tested. A faulty transformer loads the magnetic circuit of one magnetic core and causes the flux to flow through the other magnetic core and change the brilliance of the indicating lamps.

3,823,370

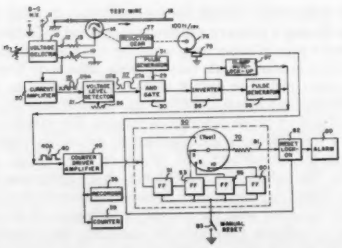
WIRE INSULATION TESTING APPARATUS WITH MEANS INDICATING INSULATION FAULTS PER PREDETERMINED INCREMENTAL LENGTH

Wesley William Pendleton, and Robert Clifton Thompson, both of Muskegon, Mich., assignors to Anaconda Wire & Cable Company, New York, N.Y.

Continuation of Ser. No. 876,968, Nov. 14, 1969, abandoned. This application Aug. 9, 1971, Ser. No. 170,307

Int. Cl. G01r *31/12*

U.S. Cl. 324—54 **1 Claim**



Test apparatus is disclosed which provides continuous nondestructive tests for faults in insulation coatings on wire. Means are provided for counting detected faults and actuating an alarm when the fault rate exceeds an undesired limit for any predetermined incremental length of wire. Switch means are provided which automatically adjust measuring sensitivity to correspond with the switch selected D-C test voltage applied to the insulation under test.

3,823,371

DEVICE FOR MEASURING PHYSICAL PROPERTIES OF A MOVING WEB

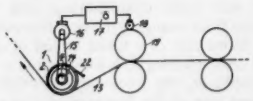
Paul Lippke, deceased, late of Walter Rathenau-Strasse 14, Neuwied, Germany (by Rudolf Hiemke, executor)

Filed May 30, 1972, Ser. No. 267,952

Claims priority, application Germany, July 1, 1971, 2132712

Int. Cl. G01r *27/26*

U.S. Cl. 162—263 **5 Claims**



A device for measuring physical properties of a moving web which passes over successive peripheral sections of a hollow rotatable drum which within the range of value indicator means within the drum is adapted to engage the web the properties of which are to be measured.

3,823,372

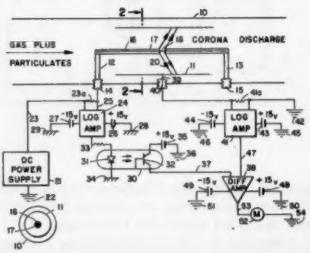
METHOD AND APPARATUS FOR MEASURING THE TOTAL SURFACE AREA CONCENTRATION OF PARTICLES ENTRAINED IN A GAS

Donald N. Hanson, Orinda, and Alexis T. Bell, Oakland, both of Calif., assignors to The Regents of the University of California, Berkely, Calif.

Filed Nov. 6, 1972, Ser. No. 304,017

Int. Cl. G01n *27/70, 15/00*

U.S. Cl. 324—71 R **15 Claims**



The total surface area concentration of particles entrained in a gas is determined by measuring the original and residual currents resulting from a low-intensity gaseous ion source operating in a space through which the particle-laden gas is flowed. A short corona discharge is a typical example of such a source. The measurement is independent of current and does not require knowledge of particle size distribution.

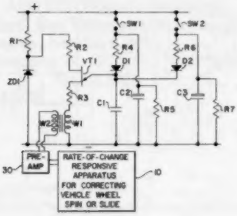
3,823,373
PROVING CIRCUITS FOR VEHICLE WHEEL SPIN OR SLIDE CORRECTION APPARATUS

Peter P. Pike, London, England, assignor to Westinghouse Brake and Signal Company Limited, London, England

Continuation-in-part of Ser. No. 21,272, March 20, 1970, abandoned. This application Feb. 22, 1972, Ser. No. 227,761

Int. Cl. G01r *31/00*; H03k *3/26*

U.S. Cl. 324—73 R **8 Claims**



A proving circuit for an apparatus for correcting vehicle wheel spin or slide includes an oscillator for generating a first output signal the frequency of which varies over a given range in accordance with a first rate of change law and a second signal which varies over a given range of frequencies in accordance with a second rate of change law, the rate of change laws being such that when the signals are applied to the apparatus as a simulated rate of change of velocity signal the correct operation of the apparatus is initiated by one of the signals but not by the other. The output of the proving circuit is magnetically coupled to the pick-up coil of the wheel speed detector of the apparatus so that the detector and pre-amplifier which form the input to the apparatus are proved as well.

3,823,374
METHOD AND APPARATUS FOR THE PRESENTATION OF FREQUENCY

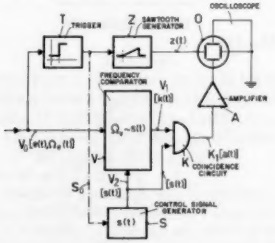
Rene Dandliker, and Paul D. Iten, both of Oberrohrdorf, Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland

Filed Oct. 4, 1972, Ser. No. 296,062

Claims priority, application Switzerland, Oct. 7, 1971, 14710/71

Int. Cl. G01r *23/14*

U.S. Cl. 324—79 R **17 Claims**



A method of presenting frequency whereby an input signal is compared with a comparison frequency which is variable in accordance with a control signal. Agreement between a frequency contained in the input signal and the comparison frequency has the effect of producing an indication signal and, by relating the corresponding deviation of the control signal to the indication signal, an output signal. When applied to an input signal having a defined and periodically variable instantaneous frequency, the modulation periods of the comparison frequency exhibit a different phase position relative to the periods of the instantaneous frequency in at least two consecutive periods of the instantaneous frequency.

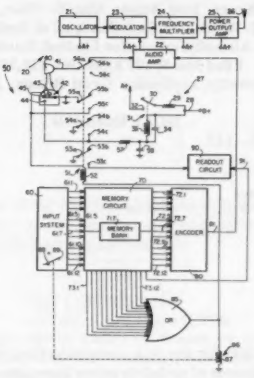
3,823,375
SYSTEM FOR TRANSMITTING PRIORITY MESSAGES AND SECONDARY MESSAGES

Keith H. Wycoff, P.O. Box 308, Lexington, Nebr.

Filed Nov. 8, 1971, Ser. No. 196,314

Int. Cl. H04b *1/00*

U.S. Cl. 325—57 **25 Claims**



There are provided a first input for the priority message and a second input for the secondary message. A memory circuit coupled to the second input stores the secondary message. A sensing circuit is responsive to the concurrence of the absence of a priority message and the presence of a secondary message to provide a control signal. A readout circuit is responsive to the control signal to cause the memory circuit to release the stored secondary message. An output circuit accepts either the priority message if present, or the secondary message from the memory circuit.

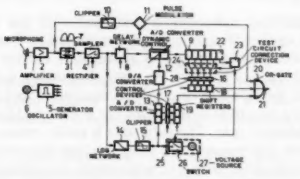
3,823,376
TRANSMITTER FOR THE TRANSMISSION OF ANALOGUE SIGNALS BY PULSE CODE

Johannes Anton Greefkes, Emmasingel, Eindhoven, and Jan Korevaar Geerlof, Hilvesum, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 120,542, March 3, 1971, abandoned. This application Mar. 19, 1973, Ser. No. 342,447

Int. Cl. H04b *1/04*

U.S. Cl. 325—141 **9 Claims**



Pulse code modulation transmitter including an instantaneous dynamic control device having a segment-shaped control characteristic, in which the successive amplitude values are converted into codegroups in a first analog-to-digital con-

verter and the different segments of the control characteristic being characterized by codegroups in a second analog-to-digital converter in order to considerably reduce the accuracy requirements in their form, A test circuit is connected to the first analog-to-digiral converter formed with an enlarged coding range for the purpose of testing the pulse having the greatest weight and a correction device controlled by the test circuit is coupled for the purpose of correcting codegroups to both the first and the second analog-to-digital converter.

3,823,377

COMMUNICATION SYSTEMS

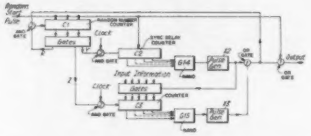
Patrick J. Keane, Iron Acton; Alan B. Moor, Reading, and Michael J. Routley, Stoke Gifford, all of England, assignors to British Aircraft Corporation Limited, London, England

Filed Jan. 8, 1973, Ser. No. 321,798

Claims priority, application Great Britain, Jan. 11, 1972, 1294/72

Int. Cl. H04b *1/04*

U.S. Cl. 325—143 **1 Claim**



A transmitter for use in a communication system in which successive frames of coded data are transmitted over a multichannel link from a transmitting station to a receiving station includes a code generator for generating the successive frames of coded data and means for jittering the start of the successive frames of coded data such that the start of each frame is delayed by a random amount.

3,823,378

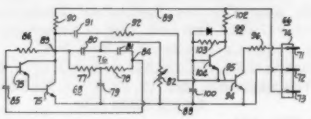
TRANSMITTER SUBCODER

Andrew F. Deming, Alliance, Ohio, assignor to The Alliance Manufacturing Company, Inc., Alliance, Ohio

Filed Dec. 2, 1971, Ser. No. 204,149

Int. Cl. H04b *7/00*

U.S. Cl. 325—155 **21 Claims**



A transmitter subcoder is disclosed with the transmitter having a carrier frequency and a modulation frequency and the subcoder influencing the modulated carrier at a third frequency rate. Typically the third frequency is lower than either the modulation or carrier frequencies and a disclosed influencing circuit is to interrupt the modulated carrier at the third frequency rate. The subcoder is easily connected to the transmitter, for example, by plugging into electrical junctions on the transmitter with the transmitter completely operative as a modulated transmitter prior to electrical connection of the subcoder. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,823,379

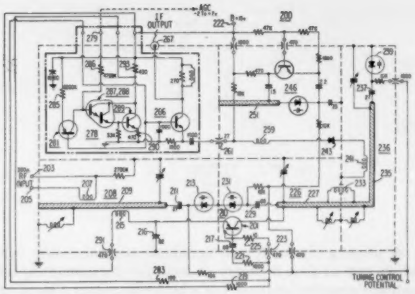
TELEVISION AUTOMATIC GAIN CONTROL CIRCUITRY PROVIDING FOR COMPATIBLE CONTROL OF VHF TUNER AND UHF TUNER

John Barrett George, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed May 21, 1973, Ser. No. 362,644

Int. Cl. H04b *1/16*; **H04n** *5/52*

U.S. Cl. 325—405 **9 Claims**



A television automatic gain control circuit which transforms the low input impedance of the gain control terminal of a stage such as a grounded base bipolar transistor RF amplifier of a UHF tuner or a PIN diode attenuator utilized for tuner gain reduction to an impedance comparable to that of the impedance of the gain control terminal of an MOS/FET transistor used as an RF amplifier of a VHF tuner. Additionally, the control circuit provides for clamping of the AGC voltage at a selected level to provide AGC delay different from VHF AGC delay. Also, a predetermined voltage offset is provided to translate the AGC voltage applied to the RF amplifier of the VHF tuner before being applied to the gain controlled stage of the UHF tuner.

3,823,380

MICROWAVE DOWN CONVERTER EMPLOYING HALF WAVE OPEN CIRCUIT RESONATORS WITH OUTPUT TAKEN AT VOLTAGE NULL OF INPUT SIGNAL

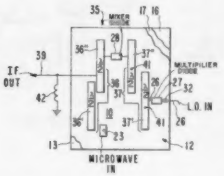
George Young, Beverly, Mass., assignor to Varian Associates, Palo Alto, Calif.

Filed Nov. 20, 1972, Ser. No. 308,225

Claims priority, application Germany, Sept. 7, 1971, 2144638

Int. Cl. H04b *1/26*

U.S. Cl. 325—445 **9 Claims**



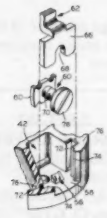
A pair of half wavelength open ended stripline resonators, resonant at a microwave input frequency and a microwave local oscillator frequency respectively, are excited with microwave input energy to be down converted and local oscillator energy, respectively. A mixer interconnects the two half-wave resonators to produce an intermediate frequency signal which is coupled onto said half wavelength resonators. The output intermediate frequency is extracted from one of the half wavelength resonators at a voltage null for the microwave

excitation thereof, whereby the intermediate frequency energy is extracted without the requirement of an output microwave bypass capacitor. Thelocal oscillator microwave energy is obtained by multiplying a VHF local oscillator signal and exciting a half wavelength stripline resonator which in turn is coupled to the local oscillator half wavelength resonator.

3,823,381
CAPS AND CONNECTORS WITH POSITIONING CAM AND METHOD OF FORMING

Robert E. Maloof, East Greenwich, R.I., assignor to General Electric Company, New York, N.Y.

Filed June 28, 1973, Ser. No. 374,410
Int. Cl. H01r *3/00*
U.S. Cl. 339—196 M **4 Claims**



The assembly of heavy duty caps and connectors is improved by incorporation of a wire clamp positioning ramp in the base of a clamp well in combination with a clamp restraining wall proximate the foot of the ramp. On gravity feed of a wire clamp into the well, the screw and clamp plate of the wire clamp are brought automatically into operation position. An electrode having a forked bottom end is then inserted into the well to straddle the shank of the screw of the wire clamp so that electric power is furnished to the electrode when a wire is gripped by the wire clamp.

ERRATUM

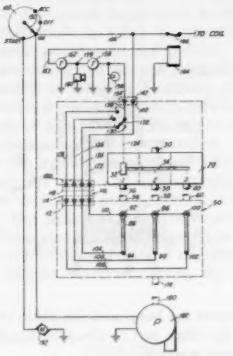
For Class 339—259 see:
Patent No. 3,823,392

3,823,382
SYSTEM FOR INHIBITING MOTOR VEHICLE OPERATION BY INEBRIATED DRIVERS

Amos L. Gaddy, 1534 Ridgewood Dr., Griffin, Ga. 30223

Filed June 22, 1973, Ser. No. 372,588
Int. Cl. G08b *21/00*
U.S. Cl. 340—53 **16 Claims**

A motor vehicle is equipped with a system for inhibiting operation by a drunk driver. A sample of the driver's breath is directed to a chamber containing chemical granules which react with alcohol fumes exothermally. A temperature responsive switch, which is in the form of a capillary tube partially filled with mercury and having electrodes at each end, extends through the chemical granules and is connected in a control circuit. The control circuit includes timers, alarms, and a relay for opening the ignition circuit of the vehicle. Upon actuation of the temperature responsive switch, an alarm and a timer are energized. After a predetermined time interval, the timer energizes a second alarm and a second timer. The second timer, after a predetermined time interval, energizes the relay to open the ignition circuit of the vehicle. Three such chambers are provided, each having a temperature responsive switch. A flow control valve directs the sample of the driver's

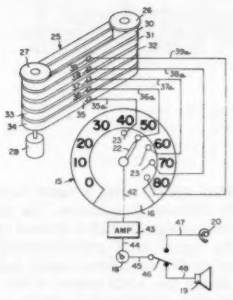


breath to one of the chambers, and a selective switch is provided for connecting the temperature responsive switch in the selected chamber to the control circuit.

3,823,383
AUDIBLE SPEEDOMETER

John Mallinger, 109 W. Childs St., Woodbury, N.J. 08096, assignor to General Electric Company, New York, N.Y.

Filed Feb. 8, 1973, Ser. No. 330,498
Int. Cl. B60q *1/54*
U.S. Cl. 340—62 **5 Claims**



An audible speedometer wherein sound reproduction means is operatively connected to a plurality of intelligent signal sources and vehicle speed sensing means for reproducing an intelligent audio-signal indicative of vehicle speed.

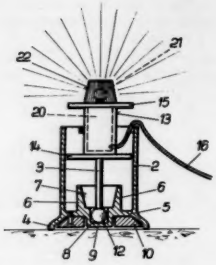
3,823,384
WARNING BLINKER

Hubert Messmer, Drosselweg 11, 7778 Markdorf; Walter Monnerjahn, Maizer Strasse 89, and Werner Rudolph, Graber Strasse 39, both of 6509 Gau-Oderheim, all of Germany

Filed Sept. 8, 1972, Ser. No. 287,440
Claims priority, application Germany, Sept. 9, 1971, 21146
Int. Cl. B60q *1/26*
U.S. Cl. 340—84 **5 Claims**

A portable warning light for motor vehicles is adapted to be connected to the vehicle electrical supply. The light is comprised of two parts. One part comprises a hand hold, an elec-

tric lamp, an electric cable and wind-up reel. The other part comprises a housing, which when the light is not in use, completely encloses the lamp and the cable reel. When the lamp is in use, the other part receives the handle to hold the lamp in an elevated position.



3,823,385

REMOTE CONTROL SYSTEM UTILIZING F.S.K. AND FREQUENCY SEQUENCE DISCRIMINATOR MEANS

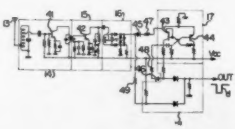
Tsutomu Kitamura, Fujisawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 26, 1973, Ser. No. 336,064

Claims priority, application Japan, Feb. 29, 1972, 47-21357; Mar. 3, 1972, 47-22522

Int. Cl. H04j *1/20*

U.S. Cl. 340—171 R **4 Claims**



A remote control system using a signal consisting of portions of mutually different frequencies. The transmitter unit transmits a continuous signal which is formed by changing the frequency of the signal at a predetermined period. The receiver unit receives this continuous signal, and discriminates the frequency, taking the AND output of this discriminated signal and a delayed signal thereof to obtain a control signal. The transmitter unit comprises a simple structure consisting of a signal generator capable of generating signals of different frequencies, whereas the receiver unit can prevent errors in the operation of the control due to noises etc.

3,823,386

CURRENT STEERING NETWORK

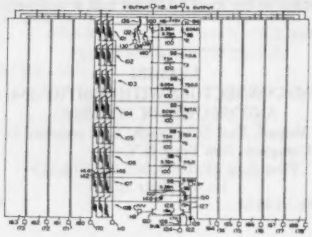
Barrie Gilbert, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Division of Ser. No. 845,393, July 28, 1969, Pat. No. 3,651,510. This application June 10, 1971, Ser. No. 151,927

Int. Cl. H04q *1/18*

U.S. Cl. 340—172 R **6 Claims**

Sets of transistors each having a selectable number of emitters are employed for dividing current between the X and Y deflection means of an XY display device wherein each set of transistors defines a break point on a given alphanumeric character. Smooth transitions are made between each set of transistors and the next set, defining separate character break points, so as to generate a character stroke therebetween. Innumerable combinations of emitters are possible for generating different characters, each with a different group of transistor sets, and a large number of transistor sets for defining many characters are easily accommodated on a common integrated circuit structure.



3,823,387

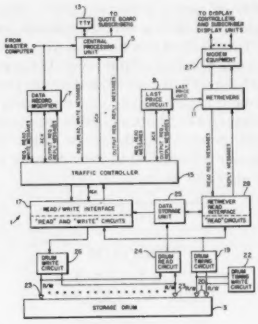
INFORMATION STORAGE AND RETRIEVAL SYSTEM

Ronald E. McClellan, Cinnaminson, N.J., assignor to Ultronic Systems Corp., Moorestown, Del.

Filed Dec. 4, 1972, Ser. No. 311,841

Int. Cl. G11c *7/00*

U.S. Cl. 340—172.5 **25 Claims**



An information storage and retrieval "slave" system for storing, processing, and supplying information to subscribers relating to securities and commodities traded on various security and commodity exchanges. The information storage and retrieval system includes a storage drum on which there is stored several classes of security and commodity information. Information may be read from, or new information written onto, the storage drum by means of a plurality of input devices which communicate with the drum by means including a read/write interface. The read/write interface includes a plurality of "read" and "write" coincidence circuits each of which is assigned to and used in the execution of a particular type of read or write operation initiated by an input device. Before a particular read or write operation may be initiated by an input device, the availability of the "read" or "write" circuit assigned to that operation, that is, whether it is busy or is not busy with another operation, must first be checked. This check is executed by status-determining circuitry in the read/write interface in response to a request message initiated by the input device and transferred to the read/write interface by a traffic controller which scans the input devices in succession looking for active request messages. In the event the read

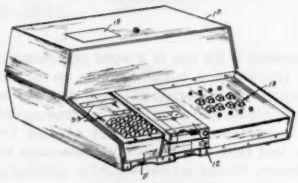
or write circuit is available, an acknowledge signal is produced by the read/write interface and transmitted to the input device via the traffic controller. The input device operates in response to the acknowledge signal produced by the read/write interface to produce an input read or write message which is then transferred to the read/write interface by the traffic controller and processed by the read/write interface either to read information from the drum or to write information onto the drum.

3,823,388

DATA COLLECTION AND UTILIZATION SYSTEM

George E. Chadima, Jr., and Robert A. Bruce, both of Cedar Rapids, Iowa, assignors to Norand Corporation, Cedar Rapids, Iowa

Filed Feb. 10, 1971, Ser. No. 114,249
Int. Cl. G06f *3/02, 3/06*
U.S. Cl. 340—172.5 **48 Claims**



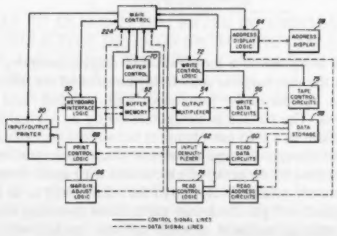
A data collection and utilization system having a portable data key entry and memory unit and a portable recorder, both of which operably fit into a console system. The key entry unit and the recorder may be coupled together by a cable and used apart from the console for entering numeric or alphabetic data into memory and for taking data from memory to the recorder. The two units may be readily electrically coupled to the console system by a series of pin connections which make contact when the units are placed in their carriage slots in the console. When so coupled, the portable units and the console operate to convert data from the tape through memory to various points of data utilization such as print-out or transmission. The present disclosure describes the logic circuitry which accomplish this unique portability, data storage and data handling capability.

3,823,389

DATA PROCESSOR WITH SELECTABLE OPERATING MODES

Richard E. Heitman, Acton, and Richard C. Norris, Belmont, both of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Filed May 18, 1972, Ser. No. 254,726
Int. Cl. G06f *3/10;* **G11b** *13/00*
U.S. Cl. 340—172.5 **9 Claims**



A word processing system incorporating a typewriter as an input/output terminal, a mass storage system such as a magnetic tape recorder/player for storing data, and a shift register connected as a buffer memory between the typewriter and the recorder/player. The system is operative in two basic modes. The first is a draft mode in which the typewriter is operable manually to write characters and generate corresponding signals which are transferred through the buffer to storage on tape or is operable in response to signals transferred from tape. The second is a final mode which differs in that there is no storage made of signals corresponding to characters written by manual manipulation of the typewriter.

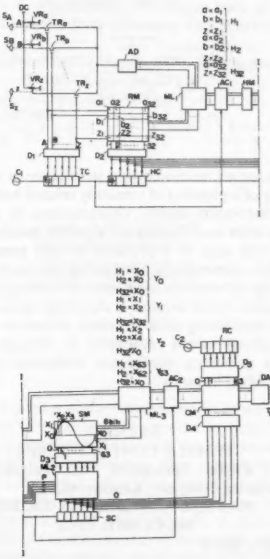
The system also includes skip/delete controls; a character key, a word key and a line key which, if operated when the system is in the draft mode cause deletion of the signals corresponding to the selected character, word or line from storage, and if operated when the system is in the final mode cause the typewriter to skip writing of the selected character, word or line without however altering the storage of the signals.

3,823,390

MUSICAL TONE WAVE SHAPE GENERATING APPARATUS

Norio Tomisawa, Hamamatsu; Yasuji Uchiyama, Hamakita; Takatoshi Okumura, and Toshio Takeda, both of Hamamatsu, all of Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoken-ken, Japan

Filed Jan. 15, 1973, Ser. No. 323,609
Claims priority, application Japan, Jan. 17, 1972, 47-6757
Int. Cl. G10h *1/00;* **G06f** *7/00, 13/00*
U.S. Cl. 340—172.5 **9 Claims**



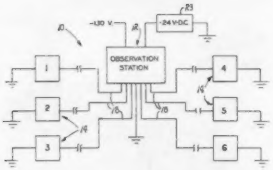
A first memory digitally stores the levels of the spectra of the fundamental wave and each harmonic up to the *m*th harmonic of intended tone color waves, a second memory digitally stores values X_0 through X_N of a sinusoidal wave function at the respective points in its one cycle sampled by a sampling number N, and a third memory is for writing incoming information to be thereafter read out. Digital signals (*a*, *b*, . . . *z*) each representing amplitude of the respective tone color are sequentially and repetitiously produced. The levels of the spectra (fundamentals: $a_1 b_1, \ldots z_1$; second harmonics: a_2, b_2 . .

. z_z; . . . ; mth harmonics: a_m, b_m, . . . z_m) for the respective tone color waves are sequentially read from the first memory. The amplitude signals and the level signals are respectively multiplied with each other tone color by tone color, and thereafter are added cumulatively for each of the fundamental waves and the harmonics to produce each cumulative value $H_p = (a \times a_p) + (b \times b_p) + \ldots + (z \times z_p)$; where $p = \ldots, m$. On the other hand, values of the sinusoidal function at the respective address points $PQ \bmod N$, where $Q = 1, \ldots N$, are read from the second memory and these read out outputs are multiplied by the respective value H_p. The products of the multiplication are added cumulatively for values H_1 through Hm to obtain a signal

$$Y_Q = \sum_{p=1}^{m} H_p \cdot X_{PQ \bmod N}.$$

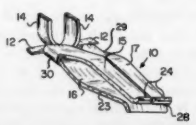
This signal Y_Q is sequentially written in an address Q in the third memory to constitute the desired musical tone wave shape. Then this musical tone wave shape is read out at an appropriate rate.

3,823,391
SYSTEM FOR MONITORING REMOTELY RELATED BUILDINGS
Paul R. Worsley, Jr., and Jerry D. Baker, both of Fresno, Calif., assignors to Valley Burglar & Fire Alarm Company
Filed Jan. 22, 1973, Ser. No. 325,631
Int. Cl. G08b 23/00
U.S. Cl. 340—213 R **11 Claims**



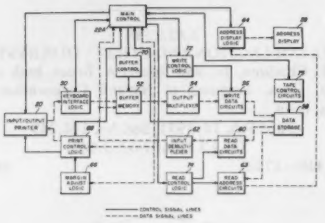
A system for accommodating a simultaneous monitoring of the integrity of a plurality of remotely related buildings from a common observation station, characterized by a plurality of monitoring units each having an integrity monitoring circuit, integrated with one of a plurality of said remotely related buildings for continuously conducting an electrical current, the amperage of which is indicative of building integrity, and an observation circuit located at the observation station common to all monitoring units remotely related to the buildings including circuit means responsive to changes in said amperages for providing intelligence indicative of a changed status of building integrity.

3,823,392
FEMALE CONTACT BLADE
Louis F. J. Pfeifer, Springfield, N.J., assignor to Heyman Manufacturing Company, Kenilworth, N.J.
Filed Sept. 5, 1972, Ser. No. 286,202
Int. Cl. H01r 11/22
U.S. Cl. 339—259 R **7 Claims**



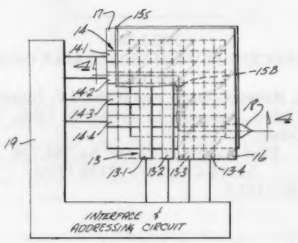
A female contact blade is made economically, having good spring tension to each leg, one leg portion made of two sections, each supported by a shoulder.

3,823,393
DATA TRANSFER DEVICE FOR WORD PROCESSING SYSTEM
Richard C. Norris, Belmont, Mass., assignor to Arthur D. Little Inc., Cambridge, Mass.
Filed Oct. 2, 1972, Ser. No. 294,332
Int. Cl. G06f 13/00
U.S. Cl. 340—172.5 **5 Claims**



The invention is for use in a word processing system employing a typewriter, a buffer memory, a recording system having magnetic tape storage in which data can be stored in sequences or blocks and a read head for reading data from the tape, the system permitting transfer of data between the typewriter and tape storage in both directions through the buffer memory. Means are provided for automatically transferring data from a given block in the tape storage to the buffer memory whenever the read head is located at the beginning of the given data block and conditions of system operation exist from which it can be expected that transfer of data to the buffer from tape would be desired by the operator.

3,823,394
SELECTIVE CONTROL OF DISCHARGE POSITION IN GAS DISCHARGE DISPLAY/MEMORY DEVICE
Bernard W. Byrum, Jr., Toledo, and Roger E. Ernsthausen, Luckey, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed June 28, 1972, Ser. No. 267,102
Int. Cl. H03b 37/00; H01j 17/04
U.S. Cl. 340—173 PL **8 Claims**



There is disclosed a gas discharge display/memory device wherein the discharge is selectively controlled for various advantages, particularly increased light output and panel brightness. The device is characterized by an ionizable gaseous medium in a thin gas chamber between a pair of opposed dielectric charge storage members, each dielectric member being backed by an array of electrodes with each array being appropriately oriented relative to the other array so as to form a multiplicity of gas discharge cells. Both opposing dielectric charge storage surfaces of each cell are coated with a first layer of low electron yield material and a second layer of high electron yield material — in the geometric form of dots, lines, etc., — the second layer being appropriately positioned such

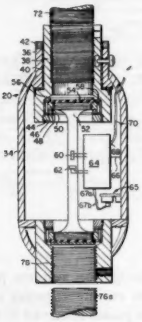
that it is surrounded by the first layer of low electron yield material and such that two opposing surfaces of high electron yield material at or near a discharge cell site cause the cell discharge to occur at the pair of opposing surfaces of high electron yield material. The relative position of the high electron yield material surfaces can be utilized to maximize the visible light output from the panel. The Townsend's (gamma) second coefficient of the high electron yield material is at least 1.5 times the Townsend's second coefficient of the low electron yield material.

3,823,395

REMOTE CONDITION INDICATOR FOR LOAD-LIFTING DEVICE

Edward T. Rigney, Wayland; Bradford W. Edgerton, Lynnfield, and Richard A. Benson, Bedford, all of Mass., assignors to Trans-Sonics, Inc., Lexington, Mass.

Filed May 30, 1972, Ser. No. 258,079
Int. Cl. G08b *21/00*; B66c *15/00*
U.S. Cl. 340—267 C **18 Claims**



A condition indicator for a load-lifting device has a sensor at the load end of a lifting cable to measure the weight of the load being lifted, the tilt of the hook or some other condition at the load end. A transmitter associated with the sensor transmits a signal representative of the condition to a remote receiver which causes an indicator to display a signal indicative of the condition being sensed. The transmitter and receiver operate at kilohertz frequencies and utilize the load-lifting cable and the crane boom as a transmission line between them. This minimizes radiation to other units and also minimizes stray radiation pickup from other units in the vicinity.

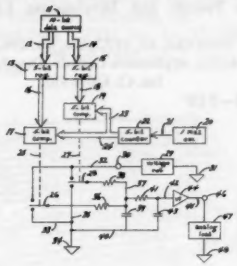
3,823,396

DIGITAL TO ANALOG CONVERTER INCORPORATING MULTIPLE TIME DIVISION SWITCHING CIRCUITS

Tenny D. Lode, Cherry Hills Village, Colo., assignor to Electronics Processors, Inc., Englewood, Colo.

Filed Apr. 17, 1972, Ser. No. 244,738
Int. Cl. H03k *13/06*
U.S. Cl. 340—347 DA **15 Claims**

A Digital-to-Analog converter system incorporating time division switching circuits whose average outputs are proportional to the values of controlling digital signals. In one form, two time division switching circuits are employed to generate "coarse" and "fine" analog voltages which are summed and filtered to obtain a composite or total converter voltage output. The coarse switching circuit is controlled by a more significant group of bits of the controlling digital word, while the fine switching circuit is controlled by a less significant group of bits of the controlling digital word. The summed and filtered voltage output is substantially proportional to the numerical value of the entire digital word.

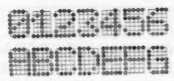


3,823,397

SERIAL TO PARALLEL CONVERTER FOR BINARY SIGNALS OF TWO DIFFERENT PULSE WIDTHS

Robert Howard, Roslyn, N.Y.; Prentice I. Robinson, Hudson, and Herbert E. Menhennett, Windham, both of N.H., assignors to Centronics Data Computer Corporation, Hudson, N.H.

Division of Ser. No. 35,405, May 7, 1970. This application July 14, 1972, Ser. No. 271,817
Int. Cl. G06f *5/04*
U.S. Cl. 340—347 DD **6 Claims**



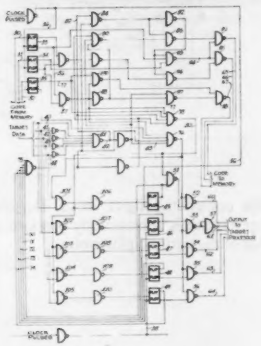
A high-speed printer of the dot matrix type in which incoming information to be printed, presented in either serial or parallel form, is examined for invalid bits and loaded into a buffer in parallel fashion. Printing does not begin until the buffer is loaded to print a line of the desired length. Printing begins as soon as the first character loaded into the buffer reaches the output stage at which time the actuation of the print wires of the dot matrix are moved across the paper document at a substantially constant speed. Detection of the location of the carriage assembly moving the printer head assembly is performed independent of the movement of the carriage to actuate the print wires at the appropriate locations. Logical circuitry is provided for detecting the presence of invalid characters and the buffer and serial-to-parallel converter are cleared prior to the loading of the next group of characters to be printed on the next line of print. During serial transmission, the printer assembly generates Acknowledge signals to indicate to the transmitting facility that the previous character has been received and stored.

3,823,398

RADAR CROSS CORRELATOR

Donald J. Horton, Ottawa, Ontario, and Martin L. Stanley-Jones, North Gower, Ontario, both of Canada, assignors to Canadian Patents and Development Limited, Ontario, Canada

Filed Oct. 10, 1972, Ser. No. 296,398
Claims priority, application Canada, Dec. 3, 1971, 129260
Int. Cl. G01s 9/02
U.S. Cl. 343—5 DP 8 Claims



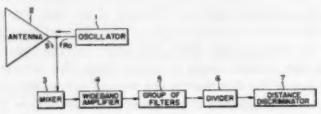
Apparatus for cross correlating radar returns in digital form in a radar system where a predetermined number of radar return signals at the same range from successive scans are required to provide a target display, includes a memory having time slots for storing the returns in digital form. The time slots represent consecutive units of range. A fine range is provided within each time slot so that a critical area is defined adjacent each boundary of a time slot. If a return falls within a critical area, the data representing this return is compared with the data for the corresponding time slot of the previous scan, and if movement has taken place between the critical area on one side of the boundary to the critical area on the other side of the boundary the latest return is placed in the same location as the previous return.

3,823,399

METHOD AND APPARATUS FOR MEASURING DISTANCE TO TARGET USING FREQUENCY-MODULATED CONTINUOUS WAVES

Teruo Yamanaka, 69-1, Yagotaurayama, Tenpaku-cho, Showa-ku, Nagoya-shi, Aichi-ken, Japan

Filed Aug. 29, 1972, Ser. No. 284,680
Claims priority, application Japan, Sept. 2, 1971, 46-67763
Int. Cl. G01s 9/23
U.S. Cl. 343—14 21 Claims



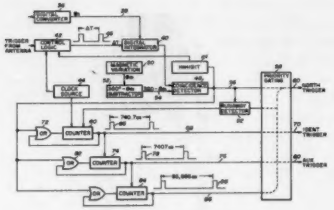
An improvement of a method for measuring distance to target using transmitted and reflected frequency-modulated continuous waves is provided. A low frequency wave produced by mixing a transmitted wave and a wave reflected from the target is separated into frequency components such as a Doppler signal component, a fundamental wave component and its harmonic components. Then, Doppler signals are obtained from the fundamental wave and harmonic components. The ratio in intensity between at least two Doppler signals is calculated to measure the distance to the target. Since the phase of Doppler signal is reversed depending upon whether the target is moving toward or away from the distance measuring apparatus, the direction of the relative movement between the target and the apparatus may be detected. Furthermore, the relative speed between the target and the distance measuring apparatus may be detected from the frequency of each Doppler signal. When the ratio of the distance to the target to the relative speed reaches a predetermined value, a command signal to actuate a device is produced.

3,823,400

ELECTRONIC TACAN AZIMUTH STABILIZATION

Denis L. Deck, Salt Lake City, Utah, assignor to E-Systems, Dallas, Tex.

Filed Oct. 12, 1972, Ser. No. 296,967
Int. Cl. G01s 1/50
U.S. Cl. 343—106 R 22 Claims



Tactical Radio Navigation systems provide distance measuring information to an interrogating aircraft in response to pairs of interrogation pulses received at a beacon transponder, the system also provides bearing and identification information. A single antenna functions to both receive the interrogation pulses and radiate the position determining signals in a radiation pattern having a single fundamental lobe and nine harmonic lobes superimposed thereon with a complete pattern being rotated at a constant speed. In such a system, it is necessary to know when the rotating radiated pattern is pointing 90° clockwise from magnetic north so that a reference pulse may be transmitted to orient the pattern to an interrogating aircraft. Radio navigation systems at fixed sites are oriented on installation to provide accurate indexing information as to the radiated pattern. Systems mounted on a moving platform, however, wherein the antenna does not maintain a fixed orientation, require additional indexing information to properly orient the radiation pattern to an interrogating aircraft. This additional processing of reference pulse information is provided by time incrementing the moving platforms heading reference for a period calculated to orient the radiation pattern with reference to magnetic north. The incrementing time is determined by comparing the incremented heading reference with a signal related to magnetic north.

3,823,401

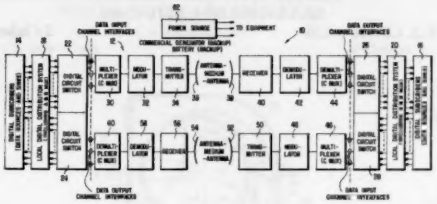
SYNCHRONOUS DATA TRANSMISSION NETWORK

Edward A. Berg, Vienna, and Frank T. Chen, Merryfield Village, both of Va., assignors to Data Transmission Company, Vienna, Va.

Filed Oct. 4, 1972, Ser. No. 294,839
Int. Cl. H04j 3/00
U.S. Cl. 343—204 29 Claims

Disclosed is a common carrier type network for the high speed transmission of digital data. Data channels are mul-

tiplexed for transmission over a microwave backbone trunk in a synchronous manner and subscriber interconnection is effected at an intermediate multiplex level by a time division switch matrix. Full duplex transmission is by way of two digitally modulated microwave carriers.

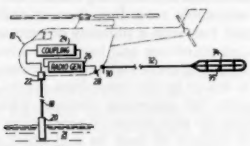


3,823,402

ANTENNA DEPLOYED FROM AIRCRAFT TO CONTACT A BODY OF WATER FOR LENGTH REDUCTION

Nelson B. Tharp, Ellicott City, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 12, 1972, Ser. No. 314,486
Int. Cl. H01q *1/30*
U.S. Cl. 343—705 **8 Claims**



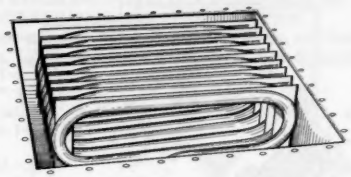
The method and apparatus is disclosed for radiating low-frequency radio waves. In particular, an extended length of a vertical radiator or antenna is suspended from a suitable aircraft, such as a helicopter, to extend a distance corresponding to approximately one-fourth of the wavelength of the radio wave to be radiated, and to contact sea water through a low-resistance connection. In this manner, a ground plane is formed for the antenna so that the physical length of the antenna may be reduced by approximately one-half and still be electrically one-half wavelength long as needed for efficient operation at resonance. In an illustrative embodiment of this invention, the suitable low-resistance connection may be effected by a drogue, which is attached to the lower end of the antenna to make a low-resistance connection between the antenna and the sea water. Illustratively, the drogue includes a surface area of an electrically conductive material, sufficiently large to make the low-resistance connection needed to conduct the large currents which flow at this point in the antenna. In operation, the aircraft takes off, and as it ascends, the antenna is unwound from a reel to provide the desired length dependent upon the frequency (wavelength) of the radio wave to be propagated. It may be understood that the length of the antenna is dependent upon the height of the aircraft. Further, a counterpoise may be extended from the aircraft to reduce the length of the vertical antenna required and also to reduce the voltage gradients established about the aircraft.

3,823,403

MULTITURN LOOP ANTENNA

Carlton H. Walter; Benedikt AA. Munk, and Gary A. Thiele, all of Columbus, Ohio, assignors to The Ohio State University Research Foundation, Columbus, Ga.

Filed June 9, 1971, Ser. No. 151,228
Int. Cl. H01d *11/12*
U.S. Cl. 343—708 **21 Claims**



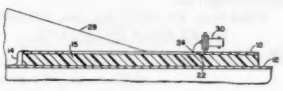
The invention is a multiturn loop antenna of an efficient design suitable for use singly, in arrays, or for inductively exciting radiating currents on a structure — the surface and the elements radiating to achieve optimum system performance. The antenna may be fed balanced or unbalanced and its input impedance may be either capacitive or inductive. In a preferred embodiment for omnidirectional coverage the antenna is positioned in a dielectric or ferrite filled cavity; the antenna may be a single element for linear polarization or a pair of multiturn loops at right angles to each other and with 90° phasing to effect circular polarization.

3,823,404

THIN SANDWICH TELEMETRY ANTENNA

Harold B. Buie, Jr., Huntsville, Ala., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 9, 1973, Ser. No. 358,552
Int. Cl. H01q *13/10, 1/28*
U.S. Cl. 343—708 **7 Claims**



A thin sandwich slot antenna is provided which produces a cardiod shaped antenna pattern. The antenna structure requires no antenna cavity or other remote structure behind the antenna. A thin-film antenna is supported by a thin dielectric strip and contoured to the shape of support structure. A metallic support structure becomes the ground plane for the antenna otherwise a metallic ground plane is placed behind the radiating element.

3,823,405

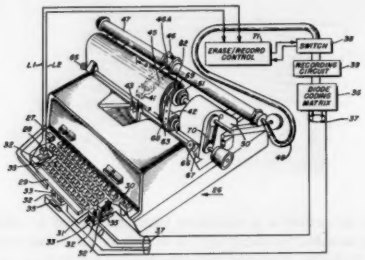
VISUAL AND MAGNETIC RECORDING SYSTEMS

Joseph R. Andreaggi, Short Hills; Robert J. Graf, Newark, and Matthew J. Relis, Teaneck, all of N.J., assignors to said Graft, by said Andreaggi, a part interest

Filed May 8, 1972, Ser. No. 250,872
Int. Cl. G11b *5/00*
U.S. Cl. 346—74 MP **39 Claims**

Disclosed is a system for visually and magnetically recording data indicative of characters on opposite sides of a paper sheet having a magnetizable backing. The data are recorded with a typewriter which includes a head for recording coded magnetic bits indicative of each character visually printed on the sheet. The head is coreless and is comprised of a plurality of windings, only certain of the windings write or record

bipolarity magnetic bits onto the backing, the remaining windings serve as both spacer and erase windings. Recording is accomplished by feeding large amplitude, short duration current pulses to the recording windings. The magnetic bits for each magnetically recorded character are selectively erased by applying bipolarity, low duty-cycle pulses of succes-



sively lower amplitudes to the backing by way of the windings and different modes of erasing various areas on the recording medium are disclosed. Also disclosed is a system for decoding the magnetic bits stored on the backing, wherein a head sequentially scans a rotating line of magnetic bits and sequentially reads out each character of the line. The entire document is read by stepping the head from line to line.

3,823,406

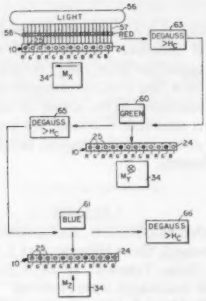
METHODS, APPARATUS AND MEDIA FOR MAGNETICALLY RECORDING INFORMATION

Frederick J. Jeffers, Altadena, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Mar. 10, 1972, Ser. No. 233,646

Int. Cl. G01d *15/12, 15/20*

U.S. Cl. 346—74.1 **58 Claims**



Methods, apparatus and media for magnetically recording at least first and second color components of an image employ anisotropic magnetizable particles in a matrix. The first color component is recorded by selectively orienting and disorienting first groups of anisotropic particles, and the second color component is recorded by selectively orienting and disorienting second groups of anisotropic particles.

3,823,407

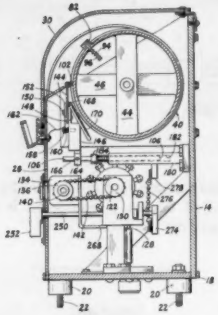
DEPTH PENETRATION DRILLING RECORDER

Henry L. Williams, Oklahoma City, Okla., assignor to Midland Industries, Incorporated, Oklahoma City, Okla.

Filed Feb. 1, 1973, Ser. No. 328,751

Int. Cl. G01d *5/04;* **E21b** *45/00*

U.S. Cl. 346—128 **2 Claims**



A recorder for monitoring the depth of penetration and downtime of a drill during drilling operations with respect to drilling time. The recorder includes a chart carried by a rotating drum provided with means to move at a predetermined constant speed and having a chart means carried on the periphery thereof, a recording element being engageable with said chart for making a record thereon, an adjustable recording element deflection and counting means, and an input drive means. The adjustable recording element deflection means, including a cam hub with a plurality of cam arms extending radially outward therefrom and being individually adjustable in length for effecting proportionate deflection of the recording element, is driven by the input drive means and is in communication with the recording element which traces and digitally displays the total depth of penetration and downtime of a drill with respect to time on said chart during drilling operations.

3,823,408

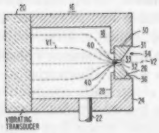
HIGH PERFORMANCE INK JET NOZZLE

William M. Gordon, III, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 29, 1972, Ser. No. 310,297

Int. Cl. G01d *15/18*

U.S. Cl. 346—140 **1 Claim**

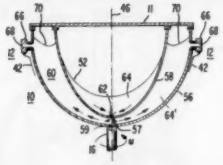


An improved ink jet nozzle structure utilizes an ink supply chamber having a source of ink under pressure connected thereto and a nozzle passage provided with a jewel nozzle having an orifice with a low aspect ratio and defined by an abrupt or sharp entrance on the chamber side.

3,823,409
ROTATABLE PARABOLOIDAL RESERVOIR USEFUL IN AN INK JET PRINTER

Ross Michael Carrell, Cinnaminson, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 30, 1973, Ser. No. 328,136
Int. Cl. G01d *15/16*
U.S. Cl. 346—140 **9 Claims**

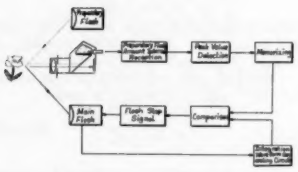


An ink reservoir having the form of a vertical paraboloid of revolution is provided with ink jets directed radially outward. The reservoir is rotated about its axis while paper is driven past the ink jets which are selectively operated to eject ink on to the paper. The reservoir has a parabolic passageway adjacent to its wall and conforming to its shape through which ink stored in the reservoir flows to the ink jets. The paraboloidal shape of the reservoir and its angular velocity are such that the ink is forced up to the ink jets through the parabolic passageway regardless of the amount of ink in the reservoir. The parabolic passageway prevents the centrifugal force and the pressure head of the stored ink from acting on the ink adjacent to the ink jets and thereby causing unwanted leakage therethrough.

3,823,410
CAMERA SHUTTER CONTROLS UTILIZING LIGHT FROM DIFFERENT SOURCES

Seijiro Tokutomi, Fujisawa, and Masahiro Kawasaki, Tokyo, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed Feb. 20, 1973, Ser. No. 333,750
Claims priority, application Japan, Feb. 23, 1972, 47-19137
Int. Cl. G03b *15/05*
U.S. Cl. 354—33 **10 Claims**

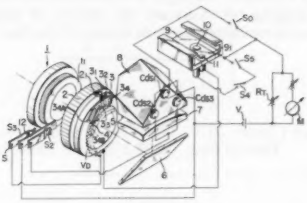


A camera which has an objective and a photosensitive device capable of receiving light which has travelled through the objective. This photosensitive device receives light created during preparatory flash illumination and forms part of a preparatory circuit for creating an electrical quantity which achieves a peak value during the preparatory flash illumination. A memory device such as a capacitor retains this peak value and is then used together with a control circuit to terminate flash illumination during a subsequent main flash which provides illumination during film exposure. Thus, the duration of the main flash is determined in accordance with the peak value retained by the memory device.

3,823,411
FLASH DISABLING INTERLOCK RESPONSIVE TO INTERCHANGEABLE LENS SELECTION

Goro Hasegawa, Tokyo; Masao Aoyagi, Yokohama, and Yukio Mashimo, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 1, 1973, Ser. No. 328,738
Claims priority, application Japan, Feb. 14, 1972, 47-15424; Feb. 14, 1972, 47-15425
Int. Cl. G03b *15/03*
U.S. Cl. 354—33 **9 Claims**

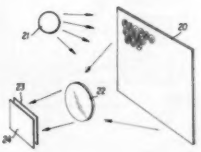


A discriminator feature means is provided on an interchangeable lens which has an angle of view larger than the light beam width angle of the flash projector normally used with the camera. The camera body is equipped with a sensor to disable flash photography when such a lens is fitted on to the camera body.

3,823,412
MULTICOLOR DISPLAY

Albert A. Friesem, Ann Arbor, Mich., assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed Mar. 30, 1972, Ser. No. 239,594
Int. Cl. G03b *33/00, 33/16*
U.S. Cl. 354—100 **8 Claims**

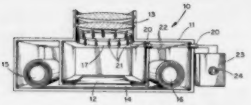


A multicolor display system including a viewing screen having a multiplicity of closely spaced photoluminescent segments thereon in a regular array of alternating red, blue and green segments. A hologram which was recorded at or near the Fourier transform plane of the input information is positioned relative to the screen to project an image of the recorded information thereon when the hologram is illuminated by a readout beam. The information is recorded in a coded format representative of multiple colors contained in the original subject from which the information was derived.

3,823,413
FILM SPEED ENHANCEMENT CAMERA

Melrose R. Cole, Prides Crossing, Mass., assignor to C & C Research, Inc., Danvers, Mass.

Filed July 17, 1972, Ser. No. 272,684
Int. Cl. G03b 27/54
U.S. Cl. 95—1 R 18 Claims



A camera having a controlled internal light source for enhancing the speed and sensitivity of the film therein at the time of exposure. The light is below the level necessary for visual fogging but decreases the amount of image photons required to reach the threshold density of the film.

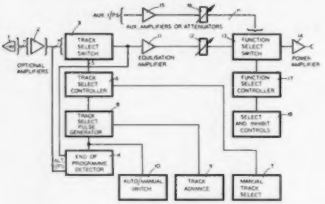
ERRATA

For Classes 357—27, 357—23 and 357—40 see: Patents Nos. 3,823,353 thru 3,823,354

3,823,414
MAGNETIC RECORD APPARATUS WITH SWITCHING MEANS TO SELECT TAPES AND INTERRUPT FOR ANNOUNCEMENTS

Philip Hodgson, St. Martins; Robert Thomas Munson, St. Peter, and Gordon Howard Reed, St. Ouen, all of England, assignors to Television Research Limited

Filed Sept. 19, 1972, Ser. No. 290,323
Claims priority, application Great Britain, Sept. 20, 1971, 43706/71
Int. Cl. G11b 5/56, 15/16
U.S. Cl. 360—64 29 Claims

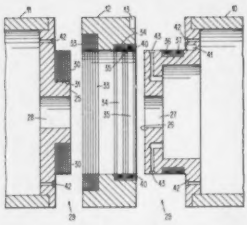


In magnetic record apparatus for sound distribution systems it is desirable to have automatic means for switching from one tape to the next at the end of each tape program, to select one of a number of tapes and to interupt the playing of the tapes to make announcements and the like. Such a magnetic record apparatus includes a signal path switching arrangement in which a signal path may be established between a terminal of a plurality of terminals of one kind and a terminal of another kind through the intermediary of a semi-conductive control device said device being arranged to establish or block said signal path by application to at least one control electrode thereof of a control potential.

3,823,415
ROTARY MAGNETIC HEAD APPARATUS HAVING AN AIR-BEARING SUPPORTED HEAD WHEEL

Gene A. Fisher, Lafayette; Donovan M. Janssen, and David Stedman, both of Boulder, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 11, 1973, Ser. No. 350,303
Int. Cl. G11b 5/52
U.S. Cl. 360—102 23 Claims

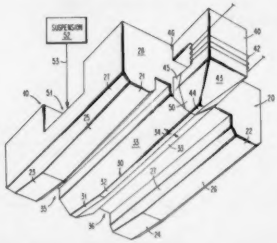


Rotating head apparatus, for use in magnetic tape recording and/or reproduction, having an annular rotor or head wheel which is air-bearing supported radially and in opposing axial direction. The rotor itself physically supports a magnetic head, a power transformer secondary winding, electric amplifier means, a motor rotor, the movable member of a rotary signal transformer, and the movable member of an optical speed transducer. The rotor is positioned within an annular cavity formed by two mandrel halves. These mandrel halves are mounted in accurate end-to-end alignment at a joint forming a portion of the cavity. The cavity wall includes the motor stator, the stationary member of both the rotary signal transformer and the speed transducer, and air-blowing jets which supply the rotor-supporting air bearing. Thus, the annular rotor rotates with no physical engagement to the mandrel halves or the various means carried thereby.

3,823,416
FLYING MAGNETIC TRANSDUCER ASSEMBLY HAVING THREE RAILS

Michael Walter Warner, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 1, 1973, Ser. No. 337,032
Int. Cl. G11b 5/60, 21/20
U.S. Cl. 360—122 11 Claims



A magnetic head assembly is disclosed for transducing information upon a relatively moving magnetic recording surface while flying thereover and that starts and stops in contact with the recording surface. The assembly comprises a magnetic slider body including three downwardly depending longitudinal rails that are laterally spaced apart, the bottom surfaces of the two outside rails forming an air bearing surface, and a magnetic core longitudinally aligned with the center rail so as to define a transducing gap. The transducing gap is located at the roll axis of the assembly such that the air bearing developed during relative movement maintains the gap at a substantially constant distance from the recording surface even during rolling motion of the assembly.

DESIGNS

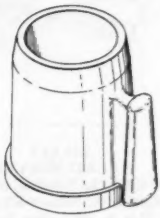
JULY 9, 1974

232,007
BRASSIERE
Jack J. Locascio, Bayonne, N.J., assignor to International Playtex Corporation
Filed May 14, 1973, Ser. No. 359,933
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—24

232,008
SHOE
Tatsuo Fukuoa, 3, 3-Ban-2-chome, Shin-Minami Fukushima, Tokushima, Japan
Filed Oct. 27, 1972, Ser. No. 301,459
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—268

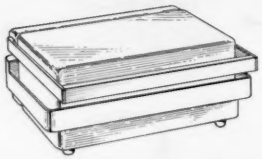
232,009
COMBINED DESK AND STORAGE UNIT
Fred A. Schmitt, Nutley, N.J., assignor to Litton Business Systems, Inc., New York, N.Y.
Filed Jan. 4, 1971, Ser. No. 103,958
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—162

232,010
MUG
Dieter Steinmann, Glendale, N.Y., assignor to European Design Corporation, Glendale, N.Y.
Filed Nov. 20, 1972, Ser. No. 308,219
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—9

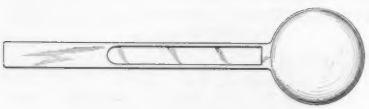


232,011
ICE BUCKET
Louis J. Denton, 3218 Albright Court, Indianapolis, Ind. 46268
Filed Jan. 26, 1973, Ser. No. 327,598
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D7—78

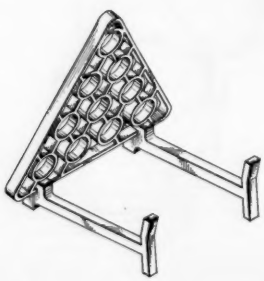
232,012
GRILLING APPARATUS
William M. Bardeau, 44 Princess Margaret Blvd., Islington, Ontario, Canada
Filed Sept. 5, 1972, Ser. No. 286,472
Claims priority, application Canada May 1, 1972
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—88



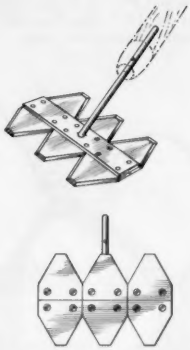
232,013
SALAD SERVER
Gunnar Cyren, Gavle, Sweden, assignor to Dansk Designs Ltd., Mount Kisco, N.Y.
Filed Nov. 1, 1972, Ser. No. 302,969
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D7—104



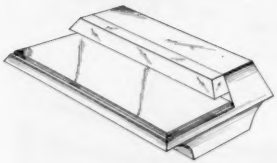
232,014
FIREPLACE GRATE
Gerald A. Coleman, Rte. 1, Box 546, Enumclaw, Wash. 98022
Filed Nov. 29, 1972, Ser. No. 310,362
Term of patent 14 years
Int. Cl. D7—*08*
U.S. Cl. D7—207



232,015
BLADE FOR A GARDEN HOE
Daniel S. Pontius, 14227 Syracuse St., Whittier, Calif. 90604
Filed Sept. 8, 1972, Ser. No. 287,260
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—11

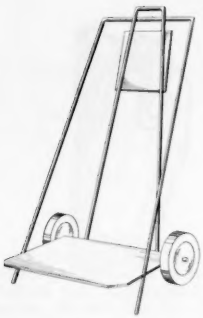


232,016
AUTOMATIC LETTER OPENER
William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed May 19, 1972, Ser. No. 255,313
Term of patent 14 years
Int. Cl. D18—*04*
U.S. Cl. D8—61

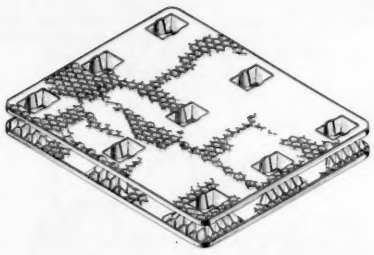


232,017
FOLDABLE POURING RECEPTACLE
Donald H. Fosher, 352 Diplomat Lane, Chesterfield, Mo. 63017
Filed July 14, 1972, Ser. No. 271,721
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—175

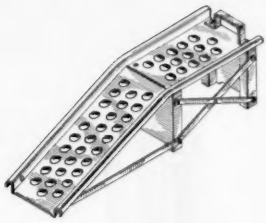
232,018
NEWSPAPER CARRIER HANDCART
Charles E. Anderson, Jr., 806 Maple Crest Drive, Baltimore, Md. 21211
Filed Jan. 9, 1973, Ser. No. 322,898
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—34



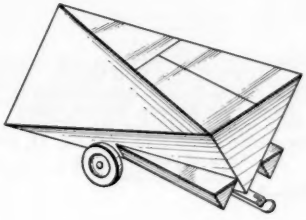
232,019
PLASTIC PALLET
Houston Rehrig, Los Angeles, and Bud Edward Sanders, Monterey Park, Calif., assignors to Premiere Leasing Corporation, Los Angeles, Calif.
Continuation-in-part of abandoned design application Ser. No. 134,535, Apr. 15, 1971. This application Oct. 1, 1971, Ser. No. 185,929
Term of patent 14 years
Int. Cl. D9—*99*
U.S. Cl. D12—53



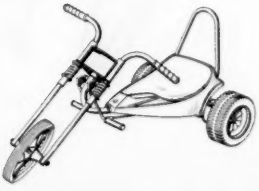
232,020
PORTABLE VEHICLE RAMP
Joseph Borsuk, Huntingdon Valley, Pa., assignor to Foxcraft Products Corporation
Filed Feb. 5, 1973, Ser. No. 329,623
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D12—53



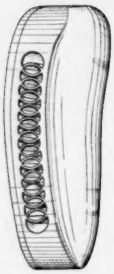
232,021
COMBINED HOUSEBOAT AND TRAILER
Paul F. Stahlheber, 3500 Miami Ave., St. Louis, Mo. 63118
Filed May 24, 1972, Ser. No. 256,625
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D12—102



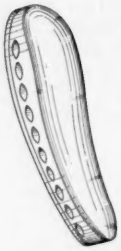
232,022
FOOT-OPERATED JUVENILE VEHICLE
Joseph C. Tieri, Minneapolis, Minn., assignor to Leisure Dynamics, Inc., Minneapolis, Minn.
Filed Apr. 13, 1973, Ser. No. 350,731
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—112



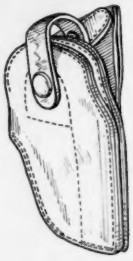
232,023
BUTT-PLATE FOR GUNS
Carlo Piccini, Brescia, Italy, assignor to S.p.A. Luigi Franchi, Brescia, Italy
Filed Jan. 11, 1973, Ser. No. 322,821
Claims priority, application Italy July 12, 1972
Term of patent 7 years
Int. Cl. D22—*05*
U.S. Cl. D22—9



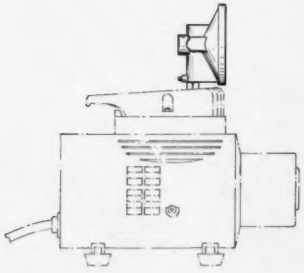
232,024
BUTT-PLATE FOR GUNS
Carlo Piccini, Brescia, Italy, assignor to S.p.A. Luigi Franchi, Brescia, Italy
Filed Jan. 11, 1973, Ser. No. 322,822
Claims priority, application Italy July 12, 1972
Term of patent 7 years
Int. Cl. D22—*05*
U.S. Cl. D22—9



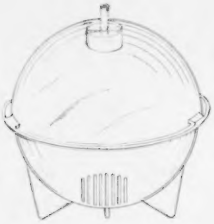
232,025
GUN HOLSTER
Frederick Elwood Hershman, 790 Newton Way, Costa Mesa, Calif. 92626
Filed May 11, 1973, Ser. No. 359,301
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D22—13



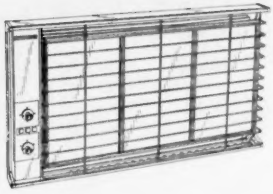
232,026
HIGH-FREQUENCY PEST CONTROL DEVICE OR THE LIKE
Arthur J. Droege, Sheboygan, Wis., assignor to Ultrason-Southern, Inc., Washington, D.C.
Filed Dec. 29, 1972, Ser. No. 319,441
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—99



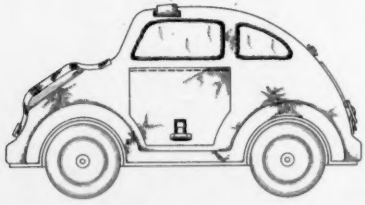
232,027
BALL HOUSING FOR AN AQUARIUM FILTER
Monte L. Levin, New York, N.Y., assignor to Metaframe Corporation, Maywood, N.J.
Filed Apr. 24, 1972, Ser. No. 247,230
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—4



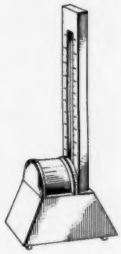
232,028
ELECTRIC HEATER
Francisco Beldarrain, Cordovilla-Pamplona, Spain, assignor to Orbaiceta, S.A., Cordovilla-Pamplona, Spain
Filed Dec. 18, 1972, Ser. No. 315,849
Claims priority, application Spain Aug. 21, 1972
Term of patent 7 years
Int. Cl. D23—*03*
U.S. Cl. D23—110



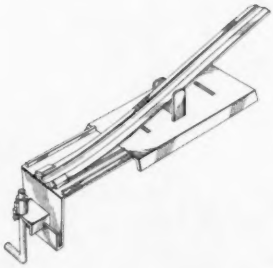
232,029
EDUCATIONAL TOY VEHICLE
Marvin I. Glass, Chicago, Howard J. Morrison, Highland Park, and Bette M. Kaelin, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.
Filed Feb. 17, 1972, Ser. No. 227,311
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D25—1 R



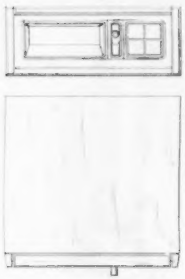
232,030
EDUCATIONAL AID FOR DEMONSTRATING PRINCIPLES IN PHYSICS
John Lawlor, Tappan, N.Y., and John Sgombick, Ramsey, N.J., assignors to Xerox Corporation, Stamford, Conn.
Filed Nov. 22, 1972, Ser. No. 308,863
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D25—1 R



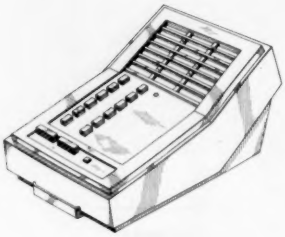
232,031
COLLISION DEMONSTRATION TEACHING AID
John Lawlor, Tappan, N.Y., and John Sgombick, Ramsey, N.J., assignors to Xerox Corporation, Stamford, Conn.
Filed Nov. 22, 1972, Ser. No. 308,865
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D25—1 R



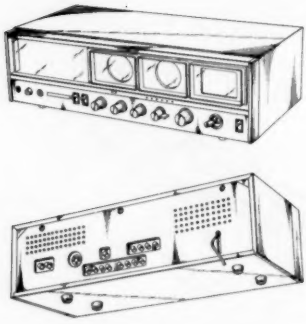
232,032
EIGHT TRACK TAPE PLAYER
Richard H. Seager, Manlius, N.Y., assignor to General Electric Company
Filed Apr. 7, 1972, Ser. No. 242,278
Term of patent 14 years
Int. Cl. D14—*01, 03*
U.S. Cl. D26—14 B



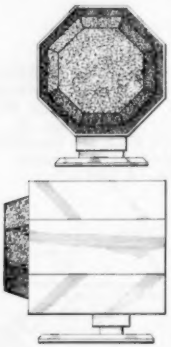
232,034
INTERCOM STATION
L. Robert Shoys, Racine, Wis., assignor to Webster Electric Company, Inc., Racine, Wis.
Filed Aug. 25, 1972, Ser. No. 283,800
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 M



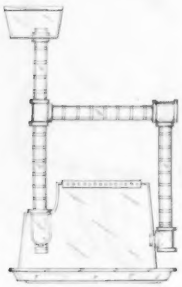
232,033
AMPLIFIER
Ken Kawamura, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed June 23, 1972, Ser. No. 265,912
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14 L



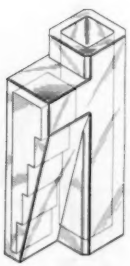
232,035
LOUDSPEAKER
Barney Rigney, Jr., Los Angeles, Calif., assignor to Sound West, Inc., Van Nuys, Calif.
Filed Oct. 27, 1972, Ser. No. 301,586
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D26—14 G



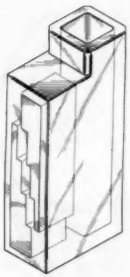
232,036
ANIMAL HABITAT
Allan H. Willinger, New Rochelle, and Albert J. Dinnerstein, Brooklyn, N.Y., assignors to Metaframe Corporation, Maywood, N.J.
Filed June 28, 1972, Ser. No. 267,149
Term of patent 14 years
Int. Cl. D30—*06*
U.S. Cl. D30—42



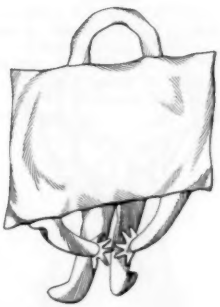
232,037
COLOR COMPARATOR
Clifford C. Hach and Max B. Kloster, Ames, Iowa, assignors to Hach Chemical Company, Ames, Iowa
Filed Feb. 28, 1972, Ser. No. 230,189
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D32—2



232,038
TWO-COLOR COMPARATOR
Clifford C. Hach and Max B. Kloster, Ames, Iowa, assignors to Hach Chemical Company, Ames, Iowa
Filed Mar. 1, 1972, Ser. No. 231,063
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D32—2



232,039
STUFFED TOY
William G. Pendill, Hinsdale, Ill., assignor to Nutrition Dynamics, Inc., Hinsdale, Ill.
Filed Mar. 15, 1973, Ser. No. 341,350
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R



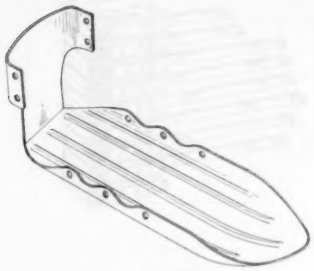
232,040
STUFFED TOY
William G. Pendill, Hinsdale, Ill., assignor to Nutrition Dynamics, Inc., Hinsdale, Ill.
Filed Mar. 15, 1973, Ser. No. 341,351
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R

232,041
STUFFED TOY
William G. Pendill, Hinsdale, Ill., assignor to Nutrition Dynamics, Inc., Hinsdale, Ill.
Filed Mar. 15, 1973, Ser. No. 341,352
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R

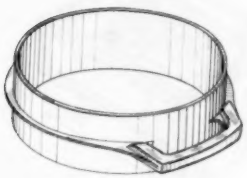
232,042
STUFFED TOY
William G. Pendill, Hinsdale, Ill., assignor to Nutrition Dynamics, Inc., Hinsdale, Ill.
Filed Mar. 15, 1973, Ser. No. 341,353
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R

232,043
STUFFED TOY
William G. Pendill, Hinsdale, Ill., assignor to Nutrition Dynamics, Inc., Hinsdale, Ill.
Filed Mar. 15, 1973, Ser. No. 341,354
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—4 R

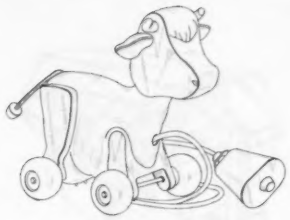
232,044
SNOW SKATE
Robert Michael King, Downsview, Ontario, Canada, assignor to Tel-Pro Products Limited, Toronto, Ontario, Canada
Filed Jan. 9, 1973, Ser. No. 322,118
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—14 D



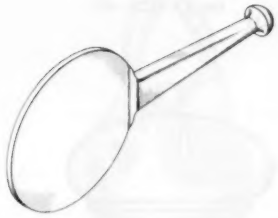
232,045
WHIRLING BALL RUNWAY TOY
Richard D. Petrillo, Merrick, N.Y., assignor to Rite-Way Products Corp., Freeport, N.Y.
Filed Oct. 12, 1972, Ser. No. 296,768
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 K



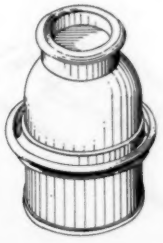
232,046
TOY COW
Ralph W. Crawford, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Jan. 2, 1973, Ser. No. 320,296
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15 D



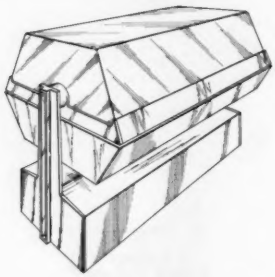
232,047
GAME PADDLE
Nabil F. Girgis, 2206 College Ave., Apt. 6, Costa Mesa, Calif. 92627
Filed Mar. 6, 1972, Ser. No. 232,338
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D34—5 SP



232,048
MILK CAN PLANTER
William A. Bamesberger, P.O. Box 1442, Auburn, Calif. 95603
Filed Apr. 17, 1973, Ser. No. 351,857
Term of patent 14 years
Int. Cl. D11—*02*; D9—*02*
U.S. Cl. D35—3 B

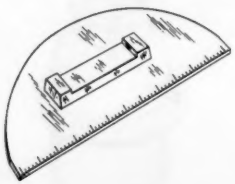


232,049
ADJUSTABLE LIGHTING FIXTURE
Albert Harvey Lahm, Lorain, John Paul Stuart White, Vermilion, and James Tatsuo Asaki, Elyria, Ohio, assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Filed Feb. 20, 1973, Ser. No. 334,020
Term of patent 14 years
Int. Cl. D26—*03, 05*
U.S. Cl. D48—31

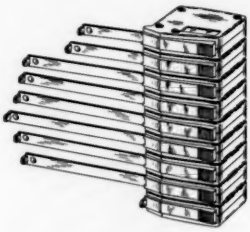


232,050
LIGHT FIXTURE
Fred M. Gore, Dallas, and Ralph H. McFarlin, Pasadena, Tex., assignors to Esquire, Inc., New York, N.Y.
Filed Apr. 11, 1973, Ser. No. 350,154
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31

232,051
DRAFTING INSTRUMENT
Peter S. Hoagland, 18769 Saratoga, Lathrup Village, Mich. 48076
Continuation-in-part of design application Ser. No. 160,234, July 6, 1971. This application Dec. 15, 1971, Ser. No. 208,511
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D52—6 A

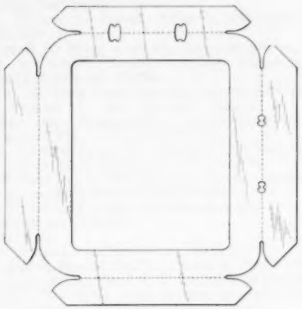


232,052
MULTIPLE TAPE MEASURE
Michel Quenot, Zone Industrielle Trepillot, F–25 Besancon, France
Filed Jan. 5, 1972, Ser. No. 215,708
Claims priority, application France July 12, 1971
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—6 A

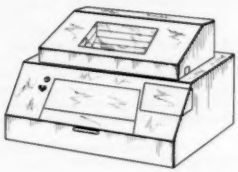


232,053
PHONOGRAPH CABINET
Robert A. O'Neil and Michael C. Wilson, Glen Ellyn, Ill., assignors to The Seeburg Corporation of Delaware, Chicago, Ill.
Filed Aug. 10, 1972, Ser. No. 279,311
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4 R

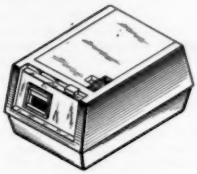
232,054
BLANK FOR A TRANSPARENCY MOUNT
Ralph David Morris, London, England, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Feb. 22, 1972, Ser. No. 228,479
Claims priority, application Great Britain Aug. 31, 1971
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D61—1 S



232,055
CABINET FOR A TELEPRINTER OR THE LIKE
Berndt Ebbe Frick, 9 Herrgardsvagen, 13500 Tyreso, Sweden
Filed Apr. 24, 1972, Ser. No. 247,238
Claims priority, application Sweden Nov. 24, 1971
Term of patent 14 years
Int. Cl. D18—*99*
U.S. Cl. D64—11 R



232,056
TAPE DISPENSER
Akio Kondo, Yokohama, Japan, assignor to Kabushiki Kaisha Uchida Yoko (also known as Uchida Yoko Co., Ltd.), Tokyo-to, Japan
Filed Dec. 29, 1972, Ser. No. 319,179
Claims priority, application Japan Oct. 11, 1972
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D74—1 B



232,057
HANDBAG
Frederick Lewis Parks, 6748 Renoir Drive 70806, and Henry Oscar Gaudet, 1737 Bellfort Drive 70815, both of Baton Rouge, La.
Continuation-in-part of abandoned design application Ser. No. 170,406, Aug. 9, 1971. This application Nov. 13, 1972, Ser. No. 305,978
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D87—3 C

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF JULY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Aafjes, Herman C., Jr.: *See—*
Siegel, William A.; Aafjes, Herman C., Jr.; and Marx, Herman, 3,822,592.

ACF Industries, Incorporated: *See—*
Walk, Howard J.; Pietsch, Ervin I.; and Smith, Garth R., 3,822,649.

Adams, Robert E.; Bragg, Gary O.; Jones, Nelson A.; and Treick, Roger E., to Caterpillar Tractor Company. Anti-noise rocker arm cover. 3,822,763, Cl. 181-33.00k.

Aday, Roy W., Jr. Fluid sample flow cell. 3,822,947, Cl. 356-246.000.

Adducci, Anthony J.; and Schwalm, Arthur W., to Cardiac Pacemakers, Inc. Metal-enclosed cardiac pacer with solid-state power source. 3,822,707, Cl. 128-419.00p.

Ade, Willy. Car coupling means with means for transmitting push-pull strains to the car body. 3,822,501, Cl. 46-221.000.

Adelizzi, Richard S., to Westinghouse Electric Corporation. Disc retainer device. 3,822,953, Cl. 403-356.000.

Advanced Recreation Equipment Corporation: *See—*
Hine, Derek L., 3,822,755.

Aggogle Inc.: *See—*
Shorin, Joseph E.; and Ricci, Vero, 3,822,812.

Agusta, Benjamin; Bardell, Paul H.; Castrucci, Paul P.; Henle, Robert A.; and Pecoraro, Raymond P., to International Business Machines Corporation. Monolithic integrated structure including fabrication and package therefor. 3,823,348, Cl. 317-234.00r.

Air Cushion Vehicles, Inc.: *See—*
Ferguson, Hugo S.; and Raymond, Frank E., 3,822,732.

Air Preheater Company, Inc., The: *See—*
Kurschner, Hermann E., 3,822,739.

Aktiebolaget Rosenfors Bruk: *See—*
Kuster, Heinz; and Brorsson, Bjorn, 3,822,726.

Aktiengesellschaft Brown, Boveri & Cie: *See—*
Dandliker, Rene; and Iten, Paul D., 3,823,374.

Akzona Incorporated: *See—*
Jacoby, Charles H., 3,822,916.

Albarino, Robert Vincent; and Schonhorn, Harold, to Bell Telephone Laboratories, Incorporated. Antioxidant for polymeric hydrocarbons. 3,823,114, Cl. 260-45.90r.

Albertson, Noel F. 3a,4,5,9b Tetrahydro-3,5-ethanonaphth [2,1-d] oxazol-2(3H)-ones. 3,823,149, Cl. 260-293.550.

Alburn, Harvey E.: *See—*
Grant, Norman H.; Alburn, Harvey E.; and Fenichel, Richard L., 3,823,125.

Alekhin, Leonid Petrovich: *See—*
Krupin, Alexandr Vasilievich; Roschin, Valentin Fedorovich; Alekhin, Leonid Petrovich; Izotov, Valery Mikhailovich; Burov, Oleg Alexandrovich; Gavrilov, Viktor Mikhailovich; Chekanov, Alexandr Ermolaevich; Lepin, Viktor Petrovich; and Vinogradov, Fedor Terntievich, 3,822,574.

Alexander, Earl L. Advanced reinforced grain design. 3,822,645, Cl. 102-102.000.

Alexandrov, Nikolai Nikitovich: *See—*
Andoniev, Dergei Mikhailovich; Alexandrov, Nikolai Nikitovich; Klochnev, Nikolai Ivanovich; Kovalevich, Evgeny Vladimirovich; Kudinov, Gennady Alexandrovich; Kutsykovich, Dorina Borisovna; Kulikov, Vasily Ivanovich; and Filipiev, Vladimirovich, 3,822,736.

Alfa Romeo S.p.A.: *See—*
Colucci, Ivo, 3,822,915.

Allan, John L. H.; and Field, Nathan D., to GAF Corporation. Method of chemical embossing. 3,823,214, Cl. 264-52.000.

Allen, John K., to Standard Oil Company. Antimony trihalide catalysis of urethane foams prepared from carboxy-containing adduct polyols. 3,823,097, Cl. 260-2.5ab.

Allen, John K., to Standard Oil Company. Compounds containing an imide linkage. 3,823,158, Cl. 260-326.00n.

Allen, Joseph C.; Fontaine, Marc F.; Brown, Alfred; and Tate, Jack F., to Texaco Inc. Petroleum recovery process. 3,822,748, Cl. 166-269.000.

Allen, Kenneth C.; and Boshinski, Edwin E., to Hobart Manufacturing Company, The. Sum of cross products multiplication and rounding. 3,823,311, Cl. 235-160.000.

Allergan Pharmaceuticals: *See—*
Ulmer, Walter R.; and Rander, Kiran J., 3,822,780.

Alliance Manufacturing Company, Inc., The: *See—*
Deming, Andrew F., 3,823,378.

Allied Chemical Corporation: *See—*
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Lofquist, Robert Alden; and Saunders, Peter Reginald, 3,822,996.
Stephenson, Robert L., 3,822,840.

Allied Colloids Limited: *See—*
Rothwell, Eric; and Smalley, Graham, 3,823,100.

Allis-Chalmers Corporation: *See—*
Callahan, Thomas R.; Kingsbury, Herbert K.; and Sutton, Thomas E., 3,823,063.

Alps Electric Co., Ltd.: *See—*
Murata, Taneo, 3,823,292.

Aluminum Company of America: *See—*
Brouwer, Nicholaas L.; and Smucker, David E., 3,822,820.
Eiland, Ehrlich M., 3,823,101.

Aluminum Suisse S.A.: *See—*
Hardt, Jean, 3,822,576.

Aly, Kenneth M.; and Kjorlien, Alton S. Wheel centering device. 3,822,478, Cl. 33-191.000.

Amagami, Keizo; Mori, Hazime; Kobayashi, Takao; Kiuchi, Mitsuyuki; and Ogino, Yoshio, to Matsushita Electric Industrial Company, Limited. Induction heating coil arrangement in induction heating equipment. 3,823,296, Cl. 219-10.770.

Amberg, Stephen W.; Doherty, Thomas E.; and Heyne, Clarence A., to Owens-Illinois Inc. Machine for producing a plastic-covered glass container. 3,822,459, Cl. 29-208.00b.

American Air Filter Company, Inc.: *See—*
Mutchler, Paul A., 3,822,691.
Mutchler, Paul A., 3,822,991.

American Bank Note Company: *See—*
Gazzola, Ivaldo; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,822,644.

American Home Products Coproation: *See—*
Jirkovsky, Ivo L., 3,823,189.

American Home Products Corporation: *See—*
Grant, Norman H.; Alburn, Harvey E.; and Fenichel, Richard L., 3,823,125.
Sellstedt, John H.; and Bell, Stanley C., 3,823,164.
Wei, Peter H. L., 3,823,153.

Ametek, Inc.: *See—*
Snyder, Kenneth J.; and Valle, Howard C., 3,822,874.

Amin, Rajnikant Babubhai, to Du Pont de Nemours, E. I., and Company. Silver capacitor metallizations containing copper polynary oxides. 3,823,093, Cl. 252-514.000.

Amos, Homer C., to Brunswick Corporation. Method for producing a three dimensional lattice. 3,822,463, Cl. 29-433.000.

Anaconda Company, The: *See—*
Petruzzi, Rudolph E., 3,822,456.

Anaconda Wire and Cable Company: *See—*
Pendleton, Wesley William; and Thompson, Robert Clifton, 3,823,370.

Anderson, Benjamin M.; deceased (by Anderson, Madalyn R., executrix); and Smithers, James P., to Armour and Company. Machine for closing filled bags under vacuum. 3,822,525, Cl. 53-112.00b.

Anderson, Carl C.: *See—*
Chang, Wen-Hsuan; Dowbenko, Rostyslaw; and Anderson, Carl C., 3,823,124.

Anderson, Madalyn R.: *See—*
Anderson, Benjamin M.; and Smithers, James P., 3,822,525.

Anderson, Sherman D. Metal detecting apparatus having improved ground-effect. 3,823,365, Cl. 324-3.000.

Andoniev, Dergei Mikhailovich; Alexandrov, Nikolai Nikitovich; Klochnev, Nikolai Ivanovich; Kovalevich, Evgeny Vladimirovich; Kudinov, Gennady Alexandrovich; Kutsykovich, Dorina Borisovna; Kulikov, Vasily Ivanovich; and Filipiev, Vladimirovich. Method for anufacturing cooling members for cooling systems of metallurgical furnaces. 3,822,736, Cl. 164-100.000.

Andre, Elie; and Mahieu, Marc, to U.S. Philips Corporation. Method of manufacturing semiconductor body. 3,823,043, Cl. 148-171.000.

Andreaggi, Joseph R.; Graf, Robert J.; and Relis, Matthew J., said Andreaggi assor. of 1/2 to said Graf, Robert J. Visual and magnetic recording systems. 3,823,405, Cl. 346-74.0mp.

Andreasson, Jan Erik: *See—*
Carlsson, Stig Martin; and Andreasson, Jan Erik, 3,822,528.

Andreev, Vladimir Prokhorovich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich, 3,823,242.

Ansgariusson, Rolf. Sectional concrete road curbs for use as borders for instance between roadways and sidewalks. 3,822,954, Cl. 404-7.000.

Antoniou, Anthony A., to Anvan Industries, Inc. Building structure. 3,822,519, Cl. 52-79.000.

Anvan Industries, Inc.: *See—*
Antoniou, Anthony A., 3,822,519.

Aoki, Shuzo: *See—*

Nonaka, Terumaro; Ishiguro, Yoshinobu; Yamatsu, Isao; Seki, Chiaki; Aoki, Shuzo; Ohnuki, Yutaka; and Koga, Yoshihiro, 3,823,182.

Aoyagi, Masao: *See*—
Hasegawa, Goro; Aoyagi, Masao; and Mashimo, Yukio, 3,823,411.

Appel, Hermann; Majer, Horst-Rudiger; and Oehlerking, Conrad, to Volkswagenwerk Aktiengesellschaft. Bumper arrangement. 3,822,907, Cl. 293-63.000.

Arambulo, Angel S.: *See*—
Ferris, Deam H.; and Arambulo, Angel S., 3,823,228.

Arco Falc srl: *See*—
Cecchetti, Claudio, 3,822,886.

Arendt, Ruby R.: *See*—
Butler, Richard A., Jr.; Hansen, Jack T.; Rump, August K.; and Arendt, Ruby R., 3,822,838.

Arian, Charles Mourad; Mahler, Hans Hermann; Hayes, Claude Cecil, Jr.; and Tanner, Hal W., Jr., to International Paper Company. Impregnation of corrugated board. 3,823,028, Cl. 117-95.000.

Armour and Company: *See*—
Anderson, Benjamin M.; and Smithers, James P., 3,822,525.

Armour, Richard Rodney; and Evans, Anthony James Thomas, to Molins Limited. Tool-holding devices. 3,822,790, Cl. 211-60.00t.

Arneson, Edwin L. Bottle carrier. 3,822,822, Cl. 229-40.000.

Arrigo, Michael F.: *See*—
Asbelle, Charles C.; Arrigo, Michael F.; and Porter, Gerald K., 3,823,208.

Arzbherger, William A., to Jet Spray Coller, Inc. Beverage dispenser. 3,822,565, Cl. 62-392.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See*—
Tokutomi, Seijiro; and Kawasaki, Masahiro, 3,823,410.

Asams, Max S.; and Wicher, Gunther, to Coloroptics, Inc. Facsimile recorder with compensation of the electrosensitive blank nonliner applied voltage-burn characteristic. 3,823,262, Cl. 178-6.60r.

Asbelle, Charles C.; Arrigo, Michael F.; and Porter, Gerald K., to United States of America, Navy. Mehthod of making a permanent prosthetic socket. 3,823,208, Cl. 264-22.000.

Aspinwall, Peter, to Comstock & Wescott, Inc. Precision book cutting apparatus. 3,822,626, Cl. 83-404.400.

Atomic Energy of Canada Limited: *See*—
Jones, Alun R.; and Richter, Warren F., 3,823,323.

Audiffred, Sidney J.; Bump, David W.; Erkkila, Raymond N.; Johnson, Lowell E.; and Pearce, Shairyl L., to Caterpillar Tractor Company. Interrelated controls for a motor and slipping clutch. 3,822,771, Cl. 192-.084.

Aumayer, Hansruedi: *See*—
McConnell, Lorne D.; and Aumayer, Hansruedi, 3,823,289.

Aurich, Christoph W.: *See*—
Tharpe, James B.; Aurich, Christoph W.; and Wallace, Joseph B., 3,822,590.

Automated Building Components, Inc.: *See*—
Jureit, John Calvin, 3,822,475.

Automated Medical Systems, Inc.: *See*—
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Automobiles Peugeot: *See*—
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Avery Products Corporation: *See*—
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Axe, Albert A.: *See*—
Simonton, Robert D.; and Axe, Albert A., 3,822,510.

Aya, Masahiro: *See*—
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Babcock-Atlantique, S.A.: *See*—
Thome, Paul, 3,823,066.

Babler, Egon S., to Teletype Corporation. Impactor assembly for printers. 3,822,641, Cl. 101-93.00c.

Back pack frame for supporting a tent: *See*—
Carter, Stephen D., 3,822,813.

Bader, Joerg; and Vogel, Christian, to Ciba-Geigy Corporation. 1-Phenyl-4-phosphoranylideneamino-5-halo-6 (1h)-pyridazone derivatives. 3,823,142, Cl. 260-250.00a.

Bailey, Ronald B., to General Electric Company. Coordinated master-slave converter system for variable-power tank loads. 3,823,362, Cl. 321-27.0ms.

Baker, Bernard S.: *See*—
Gidaspow, Dimitri; Lyczkowski, Robert W.; and Baker, Bernard S., 3,823,038.

Baker, Jerry D.: *See*—
Worsley, Paul R., Jr.; and Baker, Jerry D., 3,823,391.

Baker Perkins Limited: *See*—
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Balageas, Daniel L.: *See*—
Jamet, Jean F.; and Balageas, Daniel L., 3,822,580.

Baldenko, Dmitry Fedorovich: *See*—
Ogly, Asan-Nuri Abdulla; Baldenko, Dmitry Fedorovich; Gusman, Moisei Timofeevich; Kochnev, Anatoly Mikhailovich; and Nikomarov, Samuil Solomonovich, 3,822,972.

Baldi Nick A. Bumper mounted spare wheel carrier. 3,822,814, Cl. 224-42.060.

Balzer, Winton E.; and Knobel, Kenneth. Apparatus for heat-sealing packages. 3,823,054, Cl. 156-530.000.

Barbieri, Thomas: *See*—
Getz, Edward J.; and Barbieri, Thomas, 3,822,785.

Bardell, Paul H.: *See*—
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Barker, R. E., & Co., Limited: *See*—
Thompson, Richard David, 3,822,803.

Barnes, Robert L.; and Grafstein, Daniel, to Singer Company, The, mesne. High temperature bis(epoxyalkyl)carborane adhesives. 3,823,095, Cl. 260-2.00n.

Bartholomew, Michael E.: *See*—
Fuller, Edward N.; and Bartholomew, Michael E., 3,822,530.

Barton, William Forbes; and Reese, William E., to Grigsby Barton, Inc.; and Peabody Barnes, Inc. Liquid level control system and switch assembly therefor. 3,823,328, Cl. 307-118.000.

Basf Aktiengesellschaft: *See*—
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BASF Wyandotte Corporation: *See*—
Levis, William W., Jr.; and Pizzini, Louis C., 3,823,176.
Louvar, Joseph F.; and Nichols, Newlin S., 3,823,145.
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Bassot, Jacques; and Monpetit, Louis, to Societe des Procedes Modernes d'Injection Sopromi. High speed fuel injection system. 3,822,678, Cl. 123-32.0ea.

Bates, Emil Bernard. Roller machine for processing goods. 3,822,485, Cl. 34-121.000.

Battelle Development Corporation, The, mesne: *See*—
Ekstrom, A.; and Taylor, Ronald R., 3,822,696.

Batz, James E., to Northern Illinois Gas Company. Contactless switch device. 3,823,355, Cl. 317-246.000.

Bauerfeind, Herbert. Capotasto. 3,823,247, Cl. 84-318.000.

Bauknecht, Otto; Bleyer, Albert; and Horl, Adolf, to Zahnradfabrik Friedrichshafen AG. Trimming device for gear hobbing machine. 3,822,631, Cl. 90-1.400.

Baxter Laboratories, Inc.: *See*—
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Bayer Aktiengesellschaft: *See*—
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Bayer, Karl-Heinz, to Siemens Aktiengesellschaft. Arrangement for symmetrically distribution load to electrical machines operated in parallel. 3,823,327, Cl. 307-58.000.

BBC Brown Boveri & Company Limited: *See*—
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Bebick, Paul J.: *See*—
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Beckman, Joseph A.: *See*—
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Beeler, Leland Stanford, to Reynolds International, Inc. Production of fluidized alumina reduction cell feed. 3,823,078, Cl. 204-67.000.

Beeler, Leland Stanford, to Reynolds International, Inc. Aluminum reduction cell operating system. 3,823,079, Cl. 204-67.000.

Beeman, Robert H.; and Cleary, Robert T., to GTE Automatic Electric Laboratories Incorporated. Subscriber's telephone circuit. 3,823,273, Cl. 179-81.00b.

Beier, Helmut: *See*—
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Belden Corporation: *See*—
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Bell, Vernon D., to King-Seely Thermos Co. Plastic latch. 3,822,905, Cl. 292-87.000.

Belz, Franklin D. Toy parachute apparatus. 3,822,502, Cl. 46-241.000.

Bender, Albert, to Maschinenfabrik Gehring KG. Device for chip removing machining of trochoidal mantle surfaces. 3,822,508, Cl. 51-34.00r.

Bendix Corporation, The: *See*—
Reddy, Junuthula, 3,822,677.

Benedict, Dale Gene; Blasi, Louis Richard; and Wilson, Lowell G., to Scott, O. M., & Sons Company, The. Lawn conditioning vehicle. 3,822,655, Cl. 111-1.000.

Benfield Corporation, The, mesne: *See*—
Benson, Homer E., 3,823,222.

Benny, John R., to Hoeltge, Inc. Water flushing excreta removal system for animal housing systems. 3,822,673, Cl. 119-22.000.

Benson, Homer E., to Benfield Corporation, The, mesne. Separation of CO_2 and H_2S from gas mixtures. 3,823,222, Cl. 423-223.000.

Benson, Richard A.: *See*—
Rigney, Edward T.; Edgerton, Bradford W.; and Benson, Richard A., 3,823,395.

Beppu, Michimasa: *See*—
Okada, Hisao; Ohta, Eizo; Otani, Takeji; Beppu, Michimasa; and Yoneyama, Hiroaki, 3,823,204.

Berenbaum, Morris Benjamin; and Sogn, Allen Walter, to Allied Chemical Corporation. Preparation and uses of N-(ω-aminoalkyl)-2-aminoethane sulfonic acids as cationic dyeable additives to polyamides. 3,823,120, Cl. 260-78.00r.

Berg, Edward A.; and Chen, Frank T., to Data Transmission Company. Synchronous data transmission network. 3,823,401, Cl. 343-204.000.

Berger, Herbert; Gall, Rudi; Thiel, Max; Vomel, Wolfgang; and Sauer, Winfriede, to Boehringer Mannheim GmbH. Novel nitrofuran compounds and pharmaceutical compositions. 3,823,137, Cl. 260-240.100.

Berger, Horst H.; and Wiedmann, Siegfried K., to International Business Machines Corporation. Multi layered vertical transistor having reach-through isolating contacts. 3,823,353, Cl. 357-40.000.

Berglund, Harold A.; and Thomas, David F., to Waterous Company. Ice cream pump. 3,822,964, Cl. 417-44.000.

Berman, George A.: *See*—
Drutchas, Gilbert H.; and Berman, George A., 3,822,965.

Bernard, Georges: *See*—
Pelenc, Yves; and Bernard, Georges, 3,823,341.

Bernhardt, Walter; and Paule, Willy, to Bosch, Robert, GmbH. Tractor-trailer electrical connection system for wheel brake antilock-equipped tractors. 3,822,920, Cl. 303-20.000.

Bettge, Hans, to Siemens Aktiengesellschaft. Vacuum switch. 3,823,287, Cl. 200-144.00b.

Bevan, Christopher Graham: *See*—
O'Sullivan, Eugene Francis; Seymour-Walker, Kay John; Webb, David John Tudor; Bevan, Christopher Graham; Ross, Keith; and Works, Darnall, 3,822,979.

Bianchi, Vittorio Achille. Press with a working table provided with an inflatable cushion. 3,822,627, Cl. 83-529.000.

Bickoff, Emanuel M.; and Kohler, George O., to United States of America, Agriculture. Preparation of edible protein from leafy green crops such as alfalfa. 3,823,128, Cl. 260-112.00r.

Bidwell, Arthur W. Magnoda Products, Inc. Aluminum barrier support post. 3,822,863, Cl. 256-13.100.

Bien, Hans-Samuel: *See*—
Hederich, Volker; Gehrke, Gunter; and Bien, Hans-Samuel, 3,822,992.
Hohmann, Walter; Wunderlich, Klaus; and Bien, Hans-Samuel, 3,823,168.

Bienert, Horst, to Webasto-Werk W. Baier KG. Cable drive and guide for automobile sliding roofs. 3,822,912, Cl. 296-137.00g.

Bio-Rad Laboratories: *See*—
Zabin, Burton A., 3,823,001.

Bir, Mirev Leizerovich: *See*—
Yakobson, Yakov Savelievich; Sysin, Alexandr Yakovievich; Leonov, Vyacheslav Stepanovich; Ignatovich, Vladimir Alexcevich; Popov-Iliin, Boris Petrovich; Skachkov, Alexandr Nikolaevich; Skudina, Natalia Alexandrovna; Forichev, Sergei Gavrilovich; Degtyarev,Gavriil Artemovich; Bir, Mirev Leizerovich; Kovanov, Nikolai Ivanovich; Melnikov, Jury Sergeevich; and Voskoboinikova, Lidia Mikhailovna, 3,822,418.

Birckhead, Lennox, Jr.; and Olsen, Alden W., to Vitek Research Corporation. Method of fusing together particulate, thermoplastic material on substrate. 3,823,209, Cl. 264-25.000.

Bissot, Thomas Charles, to Du Pont de Nemours, E. I., and Company. Aqueous ethylene terpolymer hydrosol dispersions. 3,823,108, Cl. 260-27.00r.

Bitumarin N.V.: *See*—
Cramwinckel, Arnaud; and Reintjes, Rudolf Carlo, 3,822,556.

Bjorklund, Knut Bertil. Process of separating human cancer antigen proteins by gel filtration. 3,823,126, Cl. 260-112.00r.

Bjorkman, Harry K., to Energy Development Associates. Secondary battery comprising means for forming halogen hydrate solid bubble shells. 3,823,036, Cl. 136-6.00f.

Black, Billy B. Tire compressing and handling apparatus. 3,822,526, Cl. 53-124.00d.

Blair, Robert H., to Resistance Welder Corporation. Seam welding method. 3,823,300, Cl. 219-83.000.

Blake, William W.: *See*—
Heller, Watter D.; and Blake, William W., 3,822,765.

Blankenship, Owen D., to Global Marine Inc. Arctic dredging and pipelaying. 3,822,558, Cl. 61-72.100.

Blasi, Louis Richard: *See*—
Benedict, Dale Gene; Blasi, Louis Richard; and Wilson, Lowell G., 3,822,655.

Bleyer, Albert: *See*—
Bauknecht, Otto; Bleyer, Albert; and Horl, Adolf, 3,822,631.

Blomberg, Erling. Anchor. 3,822,666, Cl. 114-208.00r.

Bocami di Garibaldo Attillio S.p.A.: *See*—
Chigiotti, Mario, 3,822,632.

Bodesheim, Ferdinand; Radlmann, Eduard; Kohler, Armin; Gutschik, Ernst; and Nischk, Gunther, to Bayer Aktiengesellschaft. Antistatically finished acrylonitrile polymers. 3,823,123, Cl. 260-85.50r.

Boehringer Mannheim GmbH: *See*—
Berger, Herbert; Gall, Rudi; Thiel, Max; Vomel, Wolfgang; and Sauer, Winfriede, 3,823,137.

Boesch, Roger: *See*—
Carpenter, Keith; Heywood, Basil Jason; Parnell, Edgar William; Metivier, Jean; and Boesch, Roger, 3,823,008.

Bogush, Lev Konstantinovich: *See*—
Stekopytov, Alexei Alexeevich; Strekopytova, Tatyana Andreevna; Bogush, Lev Konstantinovich; Kuklin, Georgy Sergeevich; Super-Fainshtein, Naum Aronovich; and Severov, Viktor Sergeevich, 3,822,818.

Bohm, Heinz-Dieter; Ruggen, Werner; Krellmann, Herbert; and Schluckebier, Wilhelm, to Maschinenfabrik Stromag G.m.b.H. Flexible shaft coupling. 3,822,568, Cl. 64-11.00r.

Boiko, Georgy Alexandrovich: *See*—
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich, 3,823,242.

Bolduc, Lee R., to Population Research Incorporated. Dispensing method and apparatus. 3,822,702, Cl. 128-235.000.

Bolling, Fritz; Mayer, Armin; Parikh, Mavendra; and Toussaint, Friedrich, to Stahlwerke Bochum Aktiengesellschaft. Process for the decarbonization of steel. 3,823,042, Cl. 148-112.000.

Bolsey, Emil J. Image motion and change transducers and systems controlled thereby. 3,823,261, Cl. 178-6.800.

Bondi, Herman H. Prefabricated modular abutment assembly for supporting concrete forms of varying heights. 3,822,854, Cl. 249-33.000.

Bondy, Clemens; and Tallack, Ian Christopher, to Doverstrand Ltd. Solid foams and their preparation. 3,823,104, Cl. 260-2.50l.

Bonner, John J., to Fischer & Porter Co. Equalization mechanism for differential pressure meter. 3,822,596, Cl. 73-407.000.

Booth, John Frederick, to Hepworth Iron Company Limited, The. Manufacture of hollow clayware articles. 3,822,988, Cl. 432-5.000.

Borg-Warner Corporation: *See*—
Nutten, Warren D.; and Phillips, Bernard C., 3,822,685.

Borneman, Edmond H.; and Galvagni, John L., to Electronic Laboratories International, Inc. Diode rectifier socketed electrical devices and diode rectifiers therefor. 3,823,339, Cl. 315-69.000.

Borner, Manfred: *See*—
Maslowski, Stefan; Borner, Manfred; Huber, Hans-Peter; and Loffler, Werner, 3,823,276.

Bornzin, James H., to International Harvester Company. Drive shaft coupler. 3,822,951, Cl. 403-316.000.

Borom, Marcus P., to General Electric Company. Pneumatic analogue decompression instrument. 3,822,601, Cl. 73-432.00r.

Borsten, Herman: *See*—
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Bosch, Robert, GmbH: *See*—
Bernhardt, Walter; and Paule, Willy, 3,822,920.
Hauck, Franz; and Poppel, Joachim, 3,822,581.
Zirps, Wilhelm, 3,822,725.

Boschen, Henry C., Jr. Method and apparatus for mooring floating vessels. 3,822,663, Cl. 114-206.00r.

Boshinski, Edwin E.: *See*—
Allen, Kenneth C.; and Boshinski, Edwin E., 3,823,311.

Boswell, Colin Ralph, to United Kingdom Atomic Energy Authority. Ionizing radiation apparatus and method for analyzing flowing substances. 3,823,316, Cl. 250-375.000.

Bourgeois, Claude Raymond. Societe Nouville de Roulements Bearing seals. 3,822,890, Cl. 277-65.000.

Bowman-Shaw, George Neville, to Lancer Boss Limited. Side loaders. 3,822,804, Cl. 214-670.000.

Box, E. O., Jr.; and Farha, Floyd, Jr., to Phillips Petroleum Company. Polluted water purification. 3,823,088, Cl. 210-63.000.

Bragg, Gary O.: *See*—
Adams, Robert E.; Bragg, Gary O.; Jones, Nelson A.; and Treick, Roger E., 3,822,763.

Braginetz, Paul A., to Philip Morris Incorporated. Article display container. 3,822,781, Cl. 206-45.140.

Bramhill, Percy W. Apparatus for making cigarettes. 3,822,710, Cl. 131-70.000.

Brandenburg, Klaus; and Kuhlmorgen, Joachim, to U.S. Philip's Corporation. Multicylinder thermodynamic reciprocating machine in

which the fuel supply to burner devices is controlled by means of temperature-sensitive elements. 3,822,550, Cl. 60-24.000.

Brandenstein, Manfred: *See—*
Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Feldle, Kurt, 3,822,605.

Brecy, Andre Achille: *See—*
de l'Eprevier, Ludovic Grandin; and Brecy, Andre Achille, 3,823,360.

Bregar, George W., to Korthe Engineering Corporation. Fluid operated web break detector assembly with peripheral flange for microswitch operator. 3,823,282, Cl. 200-61.180.

Brentham, Jerry D. Exercising device. 3,822,599, Cl. 73-379.000.

Bridgestone Tire Company Limited: *See—*
Morita, Katsuo; Hashimoto, Sadao; and Miyamoto, Horoshi, 3,822,662.

Brigham Young University: *See—*
Pope, Bill J., 3,822,999.

Brindell, Gordon D.; and Macander, Rudolph F., to Quaker Oats Company, The. Polyolefins stabilized with 4,4-methylene bis(2,6-disubstituted phenol) and process thereof. 3,823,115, Cl. 260-45.95r.

Bristol-Myers Company: *See—*
Miyaki, Takeo; and Matsumoto, Kiyoshi, 3,823,069.
Naito, Takayuki; and Okumura, Jun, 3,823,141.
Naito, Takayuki; and Nakagawa, Susumu, 3,823,187.

British Aircraft Corporation: *See—*
Guppy, John R., 3,823,263.
Keane, Patrick J.; Moor, Alan B.; and Routley, Michael J., 3,823,377.

British Castors Limited: *See—*
Screen, Stafford Thomas, 3,822,437.

British Domestic Appliances Limited: *See—*
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Brooks, Robert A.: *See—*
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Brorsson, Bjorn: *See—*
Kuster, Heinz; and Brorsson, Bjorn, 3,822,726.

Brothers, Benton H.; Christianson, William O.; Hunter, Larry L.; Hunter, Max R.; Stauder, Bob E.; and Sitler, Donald D., to LaBarge, Inc. Portable electronic thermometer and method of temperature measurement. 3,822,598, Cl. 73-362.0ar.

Brouwer, Nicholaas L.; and Smucker, David E., to Aluminum Company of America. Sonic agitation of molten metal. 3,822,820, Cl. 228-1.000.

Brower, Frank M.; Phillips, Barbara H.; Matzek, Norman E.; and Musinski, Arthur L., to Dow Chemical Company, The. Preparation of aluminum hydride compositions. 3,823,226, Cl. 423-645.000.

Brower, Mary E.: *See—*
Roy, Alejo V.; and Brower, Mary E., 3,823,071.

Brown, Alfred: *See—*
Allen, Joseph C.; Fontaine, Marc F.; Brown, Alfred; and Tate, Jack F., 3,822,748.

Brown Boveri & Company Limited: *See—*
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Brown, Jack M., Jr.: *See—*
Ringle, Louis A.; and Brown, Jack M., Jr., 3,822,782.

Browning, Stanley Albert Charles. Appliance support. 3,822,892, Cl. 280-47.110.

Brownlie, William M. Towing apparatus for a cycle and the like. 3,822,898, Cl. 280-402.000.

BRS, Inc.: *See—*
Johnson, Jeffrey O., 3,822,488.

Brubaker, Dale R.: *See—*
Rohrberg, Roderick G.; and Brubaker, Dale R., 3,823,298.

Bruce, Robert A.: *See—*
Chadima, George E., Jr.; and Bruce, Robert A., 3,823,388.

Bruderer, Werner: *See—*
Rotarides, Adam; and Bruderer, Werner, 3,822,738.

Brun-Tsekhovoi, Avgust Rafaelevich; Evreinov, Anatoly Naumovich; Stadnik, Vladimir Fedorovich; and Ilenko, Boris Kuzmich. Gas distribution grid. 3,822,986, Cl. 431-328.000.

Brunar, Gerhart, to Meynadier & Cie Aktiengesellschaft. Method for the fabrication of composite insulations. 3,823,026, Cl. 117-72.000.

Brundiek, Horst; and Werner, Ludwig, to Roller mill of the edge runner type. . 3,822,829, Cl. 241-121.000.

Brunswick Corporation: *See—*
Amos, Homer C., 3,822,463.
Hungerford, Daniel Comstock, 3,822,665.

Brunton, Robert Sidney: *See—*
Johnstone, Edward Townshend Carruthers; and Brunton, Robert Sidney, 3,823,012.

Bucaria, Frank P. Hair bleach containing a thiocyanate catalyst. 3,823,231, Cl. 424-62.000.

Buchel, Karl Heinz; Grewe, Ferdinand; and Scheinpflug, Hans, to Bayer Aktiengesellschaft. 2-Acyloxybenzoic acid anilide fungicidal and bactericidal agents. 3,823,236, Cl. 424-230.000.

Bucksey, George Edward, to International Standard Electric Corporation. Type holder positioning device for teletypewriter or the like. 3,822,774, Cl. 197-18.000.

Buczkowski, Louis A. Window sash holder. 3,822,507, Cl. 49-417.000.

Bug-Lok Corporation: *See—*
Meyers, Calvin E., 3,822,573.

Buie, Harold B., Jr., to United States of America, Army. Thin sandwich telemetry antenna. 3,823,404, Cl. 343-708.000.

Bull, Alan D.: *See—*
Crowell, John A.; and Bull, Alan D., 3,822,723.

Bullard Company, The: *See—*
Tomenceak, Arthur A., 3,822,618.

Bump, David W.: *See—*
Audiffred, Sidney J.; Bump, David W.; Erkkila, Raymond N.; Johnson, Lowell E.; and Pearce, Shairyl L., 3,822,771.

Buntyn, Tom C. Combination multiple purpose campers folding cot and portable pack frame. 3,822,422, Cl. 5-114.000.

Burdick, Robert E.; and Wolf, Baxter K., to Rolari Systems, Inc. Rotary air cushion transporter. 3,822,652, Cl. 108-139.000.

Burgoon, Jack L., to Scott & Fetzer Company, The. Vacuum cleaner with height adjustment. 3,822,436, Cl. 15-354.000.

Burov, Oleg Alexandrovich: *See—*
Krupin, Alexandr Vasilievich; Roschin, Valentin Fedorovich; Alekhin, Leonid Petrovich; Izotov, Valery Mikhailovich; Burov, Oleg Alexandrovich; Gavrilov, Viktor Mikhailovich; Chekanov, Alexandr Ermolaevich; Lepin, Viktor Petrovich; and Vinogradov, Fedor Terntievich, 3,822,574.

Burr, John F.; and Powell, Gary L., to Consolidation Coal Company. Voltage protection circuitry for direct current powered machinery. 3,823,342, Cl. 317-13.00r.

Burroughs Corporation: *See—*
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Burt, Harold R.: *See—*
Catto, Kenneth A; and Burt, Harold R., 3,822,545.

Buschbom, Floyd E., to VEDA Inc. Differential auger material collector. 3,822,796, Cl. 214-17.0db.

Butler Automatic, Inc.: *See—*
Butler, Richard A., Jr.; Hansen, Jack T.; Rump, August R.; and Arendt, Ruby R., 3,822,838.

Butler, Don T. Aerator for a fish live well. 3,822,498, Cl. 43-57.000.

Butler, Richard A., Jr.; Hansen, Jack T.; Rump, August R.; and Arendt, Ruby R., to Butler Automatic, Inc. Web handling apparatus. 3,822,838, Cl. 242-75.440.

Buyken, Frank E.; and Foster, Robert C. Lock for form-ties. 3,822,859, Cl. 249-219.00w.

Buzbee, Lloyd R.; and Lake, Robert D., to Koppers Company, Inc. Thermoset polyester resin particles. 3,823,202, Cl. 260-861.000.

Byrum, Bernard W., Jr.; and Ernsthausen, Roger E., to Owens-Illinois, Inc. Selective control of discharge position in gas discharge display/memory divice. 3,823,394, Cl. 340-173.0pl.

C&C Research, Inc.: *See—*
Cole, Melrose R., 3,823,413.

Cade, George I.; Beach, Burt L.; Friesen, Milo E.; and Phillips, Samuel R., to Houdaille Industries, Inc. Sump pump. 3,822,967, Cl. 417-368.000.

Cairns, Elton J.; Chilenskas, Albert A.; and Shimotake, Hiroshi, to United States of America, Atomic Energy Commission. Implantable battery. 3,823,037, Cl. 136-6.00f.

Cairns, Hugh; and Johnson, Peter Bennett, to Fisons Limited. Pharmaceutically active compounds. 3,823,165, Cl. 260-345.200.

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Callahan, Thomas R.; Kingsbury, Herbert K.; and Sutton, Thomas E., to Allis-Chalmers Corporation. Method and system for pulp stock supply. 3,823,063, Cl. 162-212.000.

Calumite Company, The: *See—*
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Campbell, Kenneth E. Knockdown reel. 3,822,841, Cl. 242-115.000.

Canadian General Electric Company Limited: *See—*
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Carbidex Corporation: *See—*
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Carbrey, Robert Lawrence, to Bell Telephone Laboratories, Incorporated. Polarity reversal circuit. 3,823,271, Cl. 179-86.000.

Cardell, Max L., to Fiber Industries, Inc. Yarn splicing apparatus. 3,822,538, Cl. 57-22.000.

Cardiac Pacemakers, Inc.: *See—*
Adducci, Anthony J.; and Schwalm, Arthur W., 3,822,707.

Carlsson, Stig Martin; and Andreasson, Jan Erik, to Sunds Aktiebolag. Bag packing apparatus. 3,822,528, Cl. 53-159.000.

Carnes, Clifford T. Carburetor. 3,822,868, Cl. 261-50.00r.

Caron Compactor Co.: *See—*
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Caron, Fred Joseph; and Caron, James Oliver, to Caron Compactor Co. Earth compaction pads. 3,822,957, Cl. 404-121.000.

Caron, James Oliver: *See—*
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Carpenter, Keith; Heywood, Basil Jason; Parnell, Edgar William; Metivier, Jean; and Boesch, Roger, to May & Baker Limited. Herbicidal compositions and their use. 3,823,008, Cl. 71-103.000.

Carrell, Ross Michael, to RCA Corporation. Rotatable paraboloidal reservoir useful in an ink jet printer. 3,823,409, Cl. 346-140.000.

Carter, Stephen D., to Back pack frame for supporting a tent. . 3,822,813, Cl. 224-25.00a.

Caruso, Jerome C. Multiple key assembly for calculators and the like. 3,823,309, Cl. 235-145.00r.

Castorani, Giovanni: *See—*
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Castrucci, Paul P.: *See—*
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Heller, Watter D.; and Blake, William W., 3,822,765.
Stedman, Robert N., 3,822,923.

Caton, George, to Yorkshire Switchgear and Engineering Co., Limited. Electrical switchgear. 3,823,290, Cl. 200-153.0sc.

Catto, Kenneth A; and Burt, Harold R., to Data Time, Inc. Electromechanical digital readout clock. 3,822,545, Cl. 58-23.00r.

Cecchetti, Claudio, to Arco Falc srl. Game board with retractable ball return. 3,822,886, Cl. 273-125.00r.

Celevonovic, Stevan. ROLPA S.a.r.l. Method of fixing a cylindrical objdect having a central hole, and support therefor. 3,822,837, Cl. .

Centre Europeen de Recherches Mauvernay C.E.R.M.: *See—*
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Chadima, George E., Jr.; and Bruce, Robert A., to Norand Corporation. Data collection and utilization system. 3,823,388, Cl. 340-172.500.

Chadwick, Brian. Insulated smokestack conduits. 3,822,636, Cl. 98-60.000.

Chahrouri, Kamal Najib. Rotary piston engine. 3,822,971, Cl. 418-36.000.

Chamberlin, Coleman R. File folder paper fastener. 3,822,950, Cl. 402-15.000.

Chambers, Arthur E., to Carbidex Corporation. Semi-conductor and heat sink fin assembly. 3,823,351, Cl. 317-234.00r.

Champleboux, Jacques; and Delaux, Robert. Reinforcing members for rubber articles. 3,822,870, Cl. 267-152.000.

Chan, Stephen J. C.: *See—*
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Chang, Wen-Hsuan, to PPG Industries, Inc. B-stage polyurethane compositions. 3,823,051, Cl. 156-99.000.

Chang, Wen-Hsuan; Dowbenko, Rostyslaw; and Anderson, Carl C., to PPG Industries, Inc. Polymers of phosphorus-containing monomers. 3,823,124, Cl. 260-89.70r.

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Chilenskas, Albert A.: *See—*
Cairns, Elton J.; Chilenskas, Albert A.; and Shimotake, Hiroshi, 3,823,037.

Cho, Hideyuki. Apparatus for spreading and guiding fabric widthwise. 3,822,448, Cl. 26-67.000.

Chong, Victor Manuel, to Sun Research and Development Co. Sodium recovery process. 3,823,014, Cl. 75-66.000.

Christianson, William O.: *See—*
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Christie, Donald M. Lyc, Ronald W.; and Rehder, Robert H., to Canadian General Electric Company Limited. Bus incorporating current limiting reactance. 3,823,248, Cl. 174-16.00b.

Chubb, Wingfield L. Method of constructing door and window structures. 3,822,462, Cl. 29-416.000.

Chvapil, Milos, to Freudenberg, Carl, Patent Abteilung, Firma. Process for the production of collagen fiber fabrics in the form of felt-like membranes or sponge-like layers. 3,823,212, Cl. 264-49.000.

Ciba-Geigy AG: *See—*
Herzog, Hans Bernhard; and Hoppe, Rudolf, 3,823,207.
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Clapp, John M.; and Pritchard, Lewis C., to Ingersoll-Rand Company. Fast acting disc valve. 3,822,724, Cl. 137-625.500.

Clark, Chester G.: *See—*
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Minbiole, Louis J., Jr.; Clark, Chester G.; and Neumann, John W., 3,823,074.

Clark, James D'A. Method and apparatus for sampling liquids. 3,822,597, Cl. 73-423.00r.

Clark, John Colin; and Underwood, William George Elphinstone, to Glaxo Laboratories Limited. Δ^3-4-Carboxy-3-oxobutyl cephalosporins. 3,823,140, Cl. 260-243.00c.

Clark, Norman Owen. Method of modifying clay particles. 3,822,827, Cl. 241-3.000.

Clarke, Donald Bernard, to Lucas, Joseph, (Electrical) Limited. Friction welding apparatus. 3,822,821, Cl. 228-2.000.

Cleary, James M. Instrument for measuring maximum expiratory flow rate. 3,822,699, Cl. 128-2.080.

Cleary, Robert T.: *See—*
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Clinical Technology Corporation: *See—*
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Clouse, Jerry A., to Caterpillar Tractor Company. Roller bearing retaining clip. 3,822,683, Cl. 123-90.500.

Cloyd, Harold S., to Nasco Plastics, Incorporated. Adaptor for hypodermic syringe. 3,822,701, Cl. 128-221.000.

Coats, Jesse C. Lumber cam lifting mechanism. 3,822,778, Cl. 198-103.000.

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Cole, Melrose R., to C&C Research, Inc. Film speed enhancement camera. 3,823,413, Cl. 354-354.000.

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Lancz, Albert Jay, 3,823,094.
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Collins, Jan S. Golf club analyzer. 3,822,477, Cl. 33-174.00f.

Collins Radio Company: *See—*
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Colombo, Roberto, to S.p.A. Lavorazione Materie Plastiche L.M.P. Manufacturing laminates of expanded thermoplastic resins. 3,823,047, Cl. 156-322.000.

Colombo, Roberto, to Lavorazione Materie Plastiche L.M.P. S.p.A. Synthetic resin laminate and its manufacturing process. 3,823,211, Cl. 264-47.000.

Coloroptics, Inc.: *See—*
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Colucci, Ivo, to Alfa Romeo S.p.A. Safety seat belt having four fastening points, for a motor car seat. 3,822,915, Cl. 297-389.000.

Colwell, Clifton P.: *See—*
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Combustion Unlimited Incorporated: *See—*
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Commissariat a l'Energie Atomique: *See—*
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Cooney, William J., to GAF Corporation. Antistatic floor covering and textile structure. 3,823,056, Cl. 161-67.000.
Cooperrider, Myron T.: *See*—
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Coppee, Peter: *See*—
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Corbett, John Roger; and Percival, Albert, to Fisons Limited. 2-Trifluoromethylbenzimidazoles. 3,823,154, Cl. 260-309.200.
Cordelle, Michel; Crescini, Jean; Glenat, Henri; and Salvi Antoine, to Commissariat a l'Energie Atomique. Method and device for providing compensation for gyromagnetic effect in yawing motion of craft-carried total-field magnetometers. 3,823,364, Cl. 324-.5r.
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Cotton, Curran K., to Maytag Company, The. Moisture sensing control for dryer. 3,822,482, Cl. 34-44.000.
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Cotton, Malcolm, to Shell Oil Company. Epoxy resin curing agent compositions, their preparation and use. 3,823,107, Cl. 260-23.70n.
Cowan, George R., to Du Pont de Nemours, E. I., and Company. Increasing the detonation pressure of ammonium nitrate/fuel oil compositions. 3,823,044, Cl. 149-21.000.
Crabbe, Pierre; Edwards, John A.; and Fried, John H., to Syntex (U.S.A.) Inc. 16,17-Seco-delta 4,6 steroids. 3,823,184, Cl. 260-488.00b.
Cramwinckel, Arnaud; and Reintjes, Rudolf Carlo, to Bitumarin N.V. Method of laying wide asphaltic open mesh reinforced strips. 3,822,556, Cl. 61-38.000.
Crawley, Thomas B. Removable reusable labels. 3,822,492, Cl. 40-2.000.
Crawley, Thomas B . Removable reusable labels. 3,922,402, Cl. 40-2.000.
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Crisafulli, Angelo J. Oil skimmer module with free floating weir trough. 3,822,789, Cl. 210-242.000.
Crispin, Thayer S.; and Duskin, Fred E., to McDonnell Douglas Corporation. Decorative acoustic panel. 3,822,762, Cl. 181-33.00g.
Croasdale, Fred; and Evans, Raymond Victor, to Platt International Limited. Open end spinning apparatus. 3,822,541, Cl. 57-58.890.
Crom, John M., Jr. Prestressed tank and method of producing same. 3,822,520, Cl. 5-6-74.
Crook, Alan; and Lumsden, Norman, to British Domestic Appliances Limited. Switching mechanism. 3,823,329, Cl. 307-141.00r.
Crosby, Millard W. Refrigeration apparatus, including defrosting means. 3,822,562, Cl. 62-196.000.
Crowell, John A.; and Bull, Alan D., to Du Pont de Nemours, E. I., and Company. Apparatus for controlling addition of replenishment solution to a photographic processor. 3,822,723, Cl. 137-624.150.
Crowl, Jimmie Ray. Portable sawing device. 3,822,471, Cl. 30-92.000.
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Cunningham, Ronald J. Load controlled induction heating. 3,823,297, Cl. 219-10.770.
Curran, Roger J.; and Misevich, Kenneth W. Remington Arms Company, Inc. Shot propelling arrow. 3,822,884, Cl. 273-106.50r.
Cutler-Hammer, Inc.: *See*—
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Cyprus Mines Corporation: *See*—
LaGase, Francis E.; and Jovanovitch, Stevan, 3,823,255.
Czuha, Michael, Jr., to Du Pont de Nemours, E. I., and Company. Moisture analysis apparatus. 3,823,082, Cl. 204-195.00w.
Daester, Henri H.; and Jungling, Alfred, to Daester-Fairtec AG. Feeding, weighing and mixing apparatus. 3,822,866, Cl. 259-149.000.
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Dalbera, Jean-Pierre; and Nomarski, Georges, to Etablissement Public: Agence Nationale de Valorisation de la Recherches (ANVAR). Method to correct lack of extinction in polarizing microscope. 3,822,926, Cl. 350-14.000.
Dale, John M.; and Ludwig, Allen C., to United States of America, Interior. Mine wall coating. 3,823,019, Cl. 106-15.0fp.
D'Alelio, Gaetano F. Unsaturated ester of halogenated alkenes. 3,823,183, Cl. 260-485.00h.
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Dandliker, Rene; and Iten, Paul D., to Aktiengesellschaft Brown, Boveri & Cie. Method and apparatus for the presentation of frequency. 3,823,374, Cl. 324-79.00r.
D'Arcangeli, Alessandro, to Colgate-Palmolive Company. Process for producing variegated detergent bars. 3,823,215, Cl. 264-75.000.
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Davis, Robert E. Hot air sealing apparatus. 3,823,306, Cl. 219-373.000.
Davisson, Patricia B. Breast pump. 3,822,703, Cl. 128-281.000.
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De Boer, Jan J.; and Borsten, Herman, to Nederlanse Organsatie voor Toegepast-Natuurweten Schappelisk Ondergoek Ten Behoeve Van Nijverheid. Preparing cotton material with improved tensile strength retention properties. 3,822,994, Cl. 8-125.000.
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De La Mare, Harold E., to Shell Oil Company. Vulcanizable selectively hydrogenated block copolymer compositions. 3,823,203, Cl. 260-876.00b.
de l'Eprevier, Ludovic Grandin; and Brecy, Andre Achille, to Societe Industrielle Honeywell Bull. Control circuit for chopped feeding. 3,823,360, Cl. 321-18.000.
De Monsy, Richard L.; and Hankins, Norman K., to Hexcel Corporation. Method and apparatus for constructing insulated cable pressure blocks. 3,823,250, Cl. 174-23.00r.
De Pradenne, Henri Vayson; and Marcdargent, Serge, to Societe Generale de Constructions Electriques et Mecaniques (Alsthom). Electrical insulation compound, particularly for high power high tension coils to be used in rotating electrical machinery, and inslation material utilizing said composition. 3,823,200, Cl. 260-831.000.
De Vos, John B. Toy building block suitable for a pad, raft or the like. 3,822,499, Cl. 46-26.000.
De Wald, Horace A., to Lobbestael, Sandra J. Pyrazolodiazepine compounds and methods for their production. 3,823,157, Cl. 260-310.00r.
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Demarest, James A. Controlled solar energized power generator. 3,822,692, Cl. 126-271.000.
Deming, Andrew F., to Alliance Manufacturing Company, Inc., The. Transmitter subcoder. 3,823,378, Cl. 325-155.000.
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Deutsch, Albert S.; and Poppo, Joseph M., to Polychrome Corporation. Light sensitive esters of naphthoquinone-1,2-diazide-(2)-5-sulfonicacids with cyclohexylmethanol or secondary or tertiary alkanols of up to six carbon atoms. 3,823,130, Cl. 260-141.000.
Deutsche Schachtbau-und Tiefbohrgesellschaft m.b.H.: *See*—
Haferkamp, Heinz; and Peterson, Gunter, 3,822,955.
DeVos, John B. Compartmented net target and play field. 3,822,883, Cl. 273-.95h.

Dhaka, Vir A; and Kozik, Andrew F., to International Business Machines Corporation. Interconnection metallurgy system for semiconductor devices. 3,823,349, Cl. 317-234.00r.

Di Fazio, James Joseph; Giuffre, George Joseph; and Zingerman, James Rodney, to International Business Machines Corporation. Photomask repair process. 3,823,016, Cl. 96-38.300.

Diamond Power Specialty Corporation: *See—*
Rausch, David A.; and Johnston, Paul R., 3,823,279.
Wallin, Robert A.; Mull, John R.; and Smith, Don W., 3,822,439.

Diatek, Inc.: *See—*
Oudewaal, Martin J., 3,822,593.

Dick, A. B., Company: *See—*
Gilson, John L.; and Strachan, Gail L., 3,823,020.
Thomas, Richard E., 3,823,022.

Dick, Burness Carl, to Du Pont de Nemours, E. I. and Company. Hinged cap jet. 3,822,449, Cl. 28-1.400.

Dick, Franklin, to Dart Industries, Inc. Ball point pen back end closure. 3,822,949, Cl. 401-217.000.

Dictaphone Corporation: *See—*
Matz, Bjorn J., 3,823,274.

Diels, Manfred: *See—*
Schulte, Friedrich Wilhelm; Diels, Manfred; and Rosenkranz, Wilhelm, 3,822,458.

Diena, Alberto: *See—*
Lancini, Giancarlo; Lazzari, Ettore; and Diena, Alberto, 3,823,186.

DiFiore, Lucio; and Calcagno, Benedetto, to Societa' Italiana Resine S.I.R. S.p.A. Process for the preparation of alkyl aromatic compounds. 3,823,197, Cl. 260-671.00b.

Dighe, Shirkant V., to Grace, W. R., and Co. Tetrakis (3-mercaptopropyl) ether of pentaerythritol, C (CH_2 OCH_2 CH_2 CH_2 SH) 4. 3,823,191, Cl. 260-609.00r.

Disco Engineering, Inc.: *See—*
Henson, Artel R.; and Cooperrider, Myron T., 3,822,990.

Doan, Robert L. Pipe flange aligner. 3,822,481, Cl. 33-371.000.

Doane, Patrick King: *See—*
Hebeisen, Richard; and Doane, Patrick King, 3,823,246.

Doherty, Thomas E.: *See—*
Amberg, Stephen W.; Doherty, Thomas E.; and Heyne, Clarence A., 3,822,459.

Doi, Ken-Ichi: *See—*
Nakamura, Hiroto; Doi, Ken-Ichi; Sato, Akira; and Suzuki, Yushin, 3,823,336.

Dolbenko, Evgeny Tikhonovich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich, 3,823,242.

Donaruma, Lorraine Guy; and Vaska, Lauri, to International Nickel Company, Inc., The, mesne. Separation of rhodium from iridium. 3,823,220, Cl. 423-22.000.

Door Controls Incorporated: *See—*
Fischbach, Frederick F., 3,822,506.

Doose, Conrad, to Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung. Conduit system for the transport of liquid and/or gaseous media and method. 3,822,714, Cl. 137-1.000.

Douglass, Walter; and Murgatroyd, Paul John, to See-saw with foot operated linkage. . 3,822,881, Cl. 272-54.000.

Douklias, Nikolaos, to Siemens Aktiengesellschaft. Multichannel light effect generator. 3,822,930, Cl. 350-162.00r.

Doverstrand Ltd.: *See—*
Bondy, Clemens; and Tallack, Ian Christopher, 3,823,104.

Dow Badische Company: *See—*
Sanders, John H., 3,823,035.

Dow Chemical Company, The: *See—*
Brower, Frank M.; Phillips, Barbara H.; Matzek, Norman E.; and Musinski, Arthur L., 3,823,226.
Exner, Jurgen H.; and Larsen, Eric R., 3,823,175.
Lawrence, Grath D., 3,823,013.
Mulcihy, Thomas W., 3,823,003.

Dowbenko, Rostyslaw: *See—*
Chang, Wen-Hsuan; Dowbenko, Rostyslaw; and Anderson, Carl C., 3,823,124.

Doyle, Earl N. Thermosetting unsaturated polyester foam products. 3,823,099, Cl. 260-2.5be.

Doyle, Peter: *See—*
Fox, Roland Thomas Victor; Hadfield, John Roger; and Doyle, Peter, 3,823,239.

Doyle, Richard H. Apparatus for driving staples. 3,822,816, Cl. 227-83.000.

Doyle, William C., Jr.; and Kirkpatrick, Joel L., to Gulf Research & Development Company. N-(5-chlorotert. butyl-2-thiadiazolyl) carboxamides and use to combat unwanted vegetation. 3,823,005, Cl. 71-90.000.

Dresser Industries, Inc.: *See—*
Hudson, Lester S., 3,823,030.

Drutchas, Gilbert H.; and Berman, George A., to TRW Inc. Pumps with servo-type actuation for cheek plate unloading. 3,822,965, Cl. 417-53.000.

Du Perow, Donald E., to Lincoln Brass Works. Gas burner structure. 3,822,982, Cl. 431-193.000.

Du Pont de Nemours, E. I., and Company: *See—*
Amin, Rajnikant Babubhai, 3,823,093.
Bissot, Thomas Charles, 3,823,108.
Cowan, George R., 3,823,044.
Crowell, John A.; and Bull, Alan D., 3,822,723.
Czuha, Michael, Jr., 3,823,082.
Dick, Burness Carl, 3,822,449.
Duggins, Ray B.; and Vassiliou, Eustathios, 3,823,023.
Ro, Rolland Shih-Yuan, 3,823,173.
Rushmere, John Derek, 3,823,076.
Ulery, Harris Ellsworth, 3,823,077.
Wat, Edward Koon Wah, 3,823,162.
Zimmt, Werner S., 3,823,205.

Duba, Jan: *See—*
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Duell, Joseph: *See—*
Oelmayer, Reinhold; Seelos, Albert; Seitz, Helmut; Mayer, Heinz; Duell, Joseph; Hertl, Wilhelm; and Hoch, Hans-Jorg, 3,823,257.

Duffy, James J.: *See—*
Golborn, Peter; and Duffy, James J., 3,823,206.

Duggins, Ray B.; and Vassiliou, Eustathios, to Du Pont de Nemours, E. I., and Company. Surface conditioning system for polymer structures. 3,823,023, Cl. 117-5.100.

Dunkers, Karl Ragnar; and Johansson, Jarl Harald, to Johnson Construction Company. Sewage flocculating and sedimentation tank unit. 3,822,788, Cl. 210-200.000.

Dupre, Herman K. Snow making apparatus and system. 3,822,825, Cl. 239-14.000.

Durchholz, Richard Francis: *See—*
Patel, Jayantilal Mohanbhai; and Durchholz, Richard Francis, 3,823,241.

Duskin, Fred E.: *See—*
Crispin, Thayer S.; and Duskin, Fred E., 3,822,762.

Dwyer, Philip W. Pneumatically actuated switching device with ball contact means. 3,823,285, Cl. 200-81.00h.

Dykan, Vitaly Grigorievich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich, 3,823,242.

E-Systems Inc.: *See—*
Deck, Denis L., 3,823,400.

Eades, George S.: *See—*
Knapp, Charles F.; and Eades, George S., 3,822,486.

Easterly, James D. Ball return machanism for automated bowling alleys. 3,822,882, Cl. 273-49.000.

Eberspacher, J.: *See—*
Kofink, Siegfried, 3,822,690.

Edagawa, Hiroshi; Nakamura, Ituo; and Susami, Kozo, to Toray Industries, Inc. Spun-like yarn and method of manufacturing same. 3,822,543, Cl. 57-160.000.

Edgerton, Bradford W.: *See—*
Rigney, Edward T.; Edgerton, Bradford W.; and Benson, Richard A., 3,823,395.

Edwards, Albert, to Baker Perkins Limited. Apparatus for preparing foundry molds or cores from cold quick setting sand/binder/catalyst. 3,822,737, Cl. 164-158.000.

Edwards, John A.: *See—*
Crabbe, Pierre; Edwards, John A.; and Fried, John H., 3,823,184.

Efimova, Ljudmila Mikhailovna: *See—*
Stekopytov, Alexei Alexeevich; Strekopytova, Tatyana Andreevna; Bogush, Lev Konstantinovich; Kuklin, Georgy Sergeevich; Super-Fainshtein, Naum Aronovich; and Severov, Viktor Sergeevich, 3,822,818.

Egger, Raymond C. Smoking pipe with tool. 3,822,711, Cl. 131-184.00r.

Eichenberger, Kurt; Schmidt, Paul; and Schweizer, Ernst, to Ciba-Geigy Corporation. 4,5,6,7-Tetrahydrothien[2,3-d]. 3,823,151, Cl. 260-294.80c.

Eidai Sangyo Kabushiki Kaisha: *See—*
Yamagishi, Iwao, 3,823,046.

Eidinger, Adolf: *See—*
Floessel, Carl Dieter; Floessel, Klaus; and Eidinger, Adolf, 3,823,249.

Eiland, Ehrlich M., to Aluminum Company of America. Opaque white coating composition comprising essentially cellulose ester/cross-linking agent/catalyst /solvent and organic liquid. 3,823,101, Cl. 260-14.000.

Eiler, Peter, to Gottwald, Leo KG. Mobile crane. 3,822,791, Cl. 212-49.000.

Eimen, Shawn H.: *See—*
Radke, Arthur O.; and Eimen, Shawn H., 3,822,911.

Eimer, Johannes; Schroer, Walter; Windemuth, Erwin; and Coppee, Peter, to Bayer Aktiengesellschaft. Mixtures of polyurethane or polyureas, nitrocellulose and urea derivatives for dressing natural and artificial leather. 3,823,102, Cl. 260-16.000.

Eisai Co., Ltd.: *See—*
Nonaka, Terumaro; Ishiguro, Yoshinobu; Yamatsu, Isao; Seki, Chiaki; Aoki, Shuzo; Ohnuki, Yutaka; and Koga, Yoshihiro, 3,823,182.

Ekstrom, A.; and Taylor, Ronald R., to Battelle Development Corporation, The, mesne. Electrocardiography ST analyzer and method. 3,822,696, Cl. 128-2.06a.

Ekstrom, Carlson & Co.: *See—*
Lewis, John M., 3,822,958.

Electro Engineering Products Co., Inc.: *See—*

Holther, Grover P., Jr., 3,822,513.
Electronic Laboratories International, Inc.: *See*—
Borneman, Edmond H.; and Galvagni, John L., 3,823,339.
Electronic Processors, Inc.: *See*—
Lode, Tenny D., 3,823,396.
Elflein, Manfred, to Nieten- und Metallwarenfabrik Alfred Honsel. Blind rivet setting attachment for power tools. 3,822,595, Cl. 72-391.000.
Elias, Murray A., to Dell Holdings Limited. Support for construction fence. 3,822,850, Cl. 248-354.00s.
Ellegast, Konrad; Schnegg, Robert; Essig, Karl August; and Wieden, Horst, to Bayer Aktiengesellschaft. Apparatus for producing crimped filaments from synthetic polymers. 3,822,450, Cl. 28-1.300.
Emelyanenko, July Georgievich: *See*—
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich, 3,823,242.
Emery Industries, Inc.: *See*—
Schlossman, Irwin S., 3,823,185.
Emmons, George Harvey. Detachable support tray for ladders. 3,822,847, Cl. 248-210.000.
Endres, Leland S.; Gehlhoff, Leo F.; and Zimmerman, Dallas D., to Minnesota Mining and Manufacturing Company. Aldehyde condensation products of fluoroaliphatic phenols in skin protective compositions. 3,823,230, Cl. 424-82.000.
Energy Conversion Devices, Inc.: *See*—
Fritzsche, Hellmut; Ovshinsky, Stanford R.; Shaw, Robert F.; Silver, Marvin; and Smejtek , Pavel, 3,823,331.
Energy Development Associates: *See*—
Bjorkman, Harry K., 3,823,036.
Enger, Michael H.: *See*—
Obermann, George; Enger, Michael H.; and Misik, Michael F., Jr., 3,823,280.
Envirotrol, Inc.: *See*—
Tobias, George S., 3,823,010.
Epple, Donald G., to Nalco Chemical Company. Polymeric flexographic ink. 3,823,110, Cl. 260-29.70t.
Erban, Richard T. Traction roller transmission with torque loading means. 3,822,610, Cl. 74-691.000.
Erkkila, Raymond N.: *See*—
Audiffred, Sidney J.; Bump, David W.; Erkkila, Raymond N.; Johnson, Lowell E.; and Pearce, Shairyl I., 3,822,771.
Ernsthausen, Roger E.: *See*—
Byrum, Bernard W., Jr.; and Ernsthausen, Roger E., 3,823,394.
Esposito, Renato: *See*—
Giordano, Carmelo; Esposito, Renato; and Randazzo, Giacomino, 3,823,233.
Esser, Paul. Method and apparatus of manufacturing C-shaped links. 3,822,548, Cl. 59-27.000.
Essig, Karl August: *See*—
Ellegast, Konrad; Schnegg, Robert; Essig, Karl August; and Wieden, Horst, 3,822,450.
Esso Production Research Company: *See*—
Matthews, Jamie F., Jr.; and Pattison, Martin O., 3,822,559.
Maurer, William C.; Heilhecker, Joe K.; and Lock, Everett H., 3,822,902.
Esso Research and Engineering Company: *See*—
Gladrow, Elroy M., 3,823,092.
Lesser, Joseph H., 3,823,161.
Sebenik, Roger F.; and Gernand, Martin O., 3,823,011.
Esterline Corporation: *See*—
Mercer, Norman Joseph, Jr., 3,822,512.
Etablissement Public: Agence Nationale de Valorisation de la Recherches (ANVAR): *See*—
Dalbera, Jean-Pierre; and Nomarski, Georges, 3,822,926.
Etablissements Carpano & Pons S.A.: *See*—
Vouthier, Marcel, 3,822,891.
Ethyl Development Corporation: *See*—
Marchant, Paul A., 3,822,805.
Etkin, Vulf Borisovich. Device for measuring the concentration of suspended particles. 3,822,582, Cl. 73-28.000.
Eue, Ludwig: *See*—
Lorenz, Walter; Eue, Ludwig; and Hack, Helmuth, 3,823,006.
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,823,004.
Eugene-Gallia, Societe Anonyme: *See*—
Galerne, Jean, 3,823,232.
Evans, Anthony James Thomas: *See*—
Armour, Richard Rodney; and Evans, Anthony James Thomas, 3,822,790.
Evans, Eugene, Jr. Refuse collector. 3,822,802, Cl. 214-518.000.
Evans, Raymond H., to Calumite Company, The. Method of producing blast furnace slag products. 3,822,799, Cl. 214-152.000.
Evans, Raymond Victor: *See*—
Croasdale, Fred; and Evans, Raymond Victor, 3,822,541.
Evans, William B., to Improved Machinery Inc. Control apparatus and methods for molding. 3,822,867, Cl. 259-191.000.
Evertz, Egon: *See*—
Evertz, Egon; and Seybold, Rolf (said Seybold assor. to said), 3,822,509.
Evertz, Egon; and Seybold, Rolf, said Seybold assor. to said Evertz, Egon. Long-arm grinding machine. 3,822,509, Cl. 51-40.000.
Evreinov, Anatoly Naumovich: *See*—
Brun-Tsekhovoi, Avgust Rafaelevich; Evreinov, Anatoly Naumovich; Stadnik, Vladimir Fedorovich; and Ilenko, Boris Kuzmich, 3,822,986.
Ewart, John L., Jr., 20% interest to Lee, Raymond, Organization, Inc., The. Telescoping rigid boat. 3,822,427, Cl. 9-2.00s.
Exner, Jurgen H.; and Larsen, Eric R., to Dow Chemical Company, The. Halogenated neopentyl chloroformates. 3,823,175, Cl. 260-463.000.
Eyelet Specialty Company: *See*—
Landen, William James, 3,822,811.
Ezawa, Hirokatsu: *See*—
Oku, Eitaro; Nishio, Daijiro; and Ezawa, Hirokatsu, 3,823,156.
Fa. Rugel & Lutz Maschinenfabrik: *See*—
Handl, Alfons, 3,822,948.
Fabris, Hubert Jakob; and Maxey, Edwin Morgan, to General Tire & Rubber Company, The. Modified flexible polyetherurethane foams. 3,823,096, Cl. 260-2.5ap.
Fabry, Donald F., to Burroughs Corporation. System for testing solenoid response time under load and holding power under increasing load conditions. 3,823,366, Cl. 324-28.00r.
Faisandier, Jacques. Hydraulic servo mechanism. 3,822,634, Cl. 91-384.000.
Fanta, Wayne I.; and Shulman, Joel I., to Procter & Gamble Company, The. Insecticidal esters of spiro carboxylic acids. 3,823,177, Cl. 260-468.00g.
Farbenfabriken Bayer Aktiengesellschaft: *See*—
Lailach, Gunter; and Winter, Gerhard, 3,823,009.
Lorenz, Walter; Eue, Ludwig; and Hack, Helmuth, 3,823,006.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning: *See*—
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Spietschka, Ernst; and Ische, Friedrich, 3,823,147.
Farbwerke Hoechst Aktiengesellschaft vormals Meister Luciust Bruning: *See*—
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Farbwerke Hoeschst Aktiengesellschaft vormals Meister Lucius & Bruning: *See*—
Schmitt, Karl; and Hoffmann, Irmgard, 3,823,144.
Farha, Floyd, Jr.: *See*—
Box, E. O., Jr.; and Farha, Floyd, Jr., 3,823,088.
Fashion Tress, Inc.: *See*—
Ostenssen, Sture, 3,822,712.
Fassett, John R., to Collins Radio Company. Photo-masking process. 3,823,015, Cl. 96-36.000.
Fathom Oceanology Limited: *See*—
Fjarlie, Robin Lent Ibsen, 3,822,834.
Fearon, Joseph G., to Morrison-Knudson Company, Inc. Control ballast door for hopper cars. 3,822,650, Cl. 105-239.000.
Fecker, Josef, to Gustav Memminger Verfahrenstechnik fur die Maschenindustrie, Firma. Tread supply device for textile machines. 3,822,833, Cl. 242-47.120.
Fedosenko, Igor Grigorievich: *See*—
Kononenko, Vadim Grigorievich; Fedosenko, Igor Grigorievich; and Chernyavsky, Anatoly Stepanovich, 3,822,579.
Feldle, Kurt: *See*—
Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Feldle, Kurt, 3,822,605.
Feng, Chung Liao. Drawstring with clips. 3,822,445, Cl. 24-266.000.
Fenichel, Richard L.: *See*—
Grant, Norman H.; Alburn, Harvey E.; and Fenichel, Richard L., 3,823,125.
Ferguson, Hugo S.; and Raymond, Frank E., to Air Cushion Vehicles, Inc. Resilient vehicle wheel with corrugated tread wall and inwardly-dished corrugated end walls. 3,822,732, Cl. 152-7.000.
Ferguson, Joe: *See*—
Heithecker, Gary; Loseke, Melvin R.; and Ferguson, Joe, 3,823,251.
Fernholz, Hans; and Freudenberger, Dieter, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Process for the continuous preparation of dichloropropanols. 3,823,193, Cl. 260-633.000.
Ferranti Limited: *See*—
Holmes, James; and Robertson, William, 3,822,602.
Ferris, Deam H.; and Arambulo, Angel S., to University of Illinois Foundation. TGE virus vaccine. 3,823,228, Cl. 424-35.000.
Ferro Corporation: *See*—
Ponder, Fernando J., 3,823,112.
Fertigungs K.G.: *See*—
Frahm, Gerd Rainer; Meisel, Franz; and Heinl, Ulrich, 3,822,713.
Feryszka, Rubin; and Preisig, Joseph Otto, to RCA Corporation. MOS FET reference voltage supply. 3,823,332, Cl. 307-297.000.
Fiber Industries, Inc.: *See*—
Cardell, Max L., 3,822,538.
Field, Nathan D.: *See*—
Allan, John L. H.; and Field, Nathan D., 3,823,214.
Filipiev, Vladimirovich: *See*—
Andoniev, Dergei Mikhailovich; Alexandrov, Nikolai Nikitovich; Klochnev, Nikolai Ivanovich; Kovalevich, Evgeny Vladimirovich; Kudinov, Gennady Alexandrovich; Kutsykovich, Dorina Borisovna; Kulikov, Vasily Ivanovich; and Filipiev, Vladimirovich, 3,822,736.
Firestone Tire & Rubber Company, The: *See*—
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Liska, John W.; and Beckman, Joseph A., 3,823,223.

Wakefield, Lynn B.; and Kay, Edward Leo, 3,823,221.
Fischbach, Frederick F., to Door Controls Incorporated. Door coordinating device. 3,822,506, Cl. 49-367.000.
Fischer & Porter Co.: *See—*
Bonner, John J., 3,822,596.
Siegel, William A.; Aafjes, Herman C., Jr.; and Marx, Herman, 3,822,592.
Fischer, Joerg, to Bell & Howell Company. Apparatus for stripping film from a reel. 3,822,843, Cl. 242-192.000.
Fisher, Gene A.; Janssen, Donovan M.; and Stedman, David, to International Business Machines Corporation. Rotary magnetic head apparatus having an air-bearing supported head wheel. 3,823,415, Cl. 360-102.000.
Fisher, Leslie George, to GKN Transmissions Limited. Connection of resiliently deformable sealing members to generally cylindrical articles. 3,822,570, Cl. 64-32.00r.
Fisons Limited: *See—*
Cairns, Hugh; and Johnson, Peter Bennett, 3,823,165.
Corbett, John Roger; and Percival, Albert, 3,823,154.
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Simon, Donald J.; and Fitzmayer, Louis H., 3,823,295.
Fitzpatrick, George Aloysious: *See—*
Kalotay, Paul Zoltan; and Fitzpatrick, George Aloysious, 3,823,310.
Fjarlie, Robin Lent Ibsen, to Fathom Oceanology Limited. Cable transfer apparatus. 3,822,834, Cl. 242-54.00r.
Flexstiel Industries, Inc.: *See—*
Quakenbush, Howard M., 3,822,852.
Floessel, Carl Dieter; Floessel, Klaus; and Eidinger, Adolf, to BBC Brown Boveri & Company Limited. Compressed-gas insulated high-voltage conductor assembly composed of a series of rigid rectilinear sections with intermediate flexible connecting sections. ,823,249, Cl. 174-21.00c.
Floessel, Klaus: *See—*
Floessel, Carl Dieter; Floessel, Klaus; and Eidinger, Adolf, 3,823,249.
FMC Corporation: *See—*
Rosenberger, Chester A., Jr., 3,822,646.
Throner, Guy C., Jr., 3,822,660.
Fontaine, Marc F.: *See—*
Allen, Joseph C.; Fontaine, Marc F.; Brown, Alfred; and Tate, Jack F., 3,822,748.
Foote, Chauncey P., Jr.: *See—*
Gazzola, Ivaldo; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,822,644.
Forichev, Sergei Gavrilovich: *See—*
Yakobson, Yakov Savelievich; Sysin, Alexandr Yakovievich; Leonov, Vyacheslav Stepanovich; Ignatovich, Vladimir Alexeevich; Popov-Ilin, Boris Petrovich; Skachkov, Alexandr Nikolaevich; Skudina, Natalia Alexandrovna; Forichev, Sergei Gavrilovich; Degtyarev,Gavriil Artemovich; Bir, Mirev Leizerovich; Kovanov, Nikolai Ivanovich; Melnikov, Jury Sergeevich; and Voskoboinikova, Lidia Mikhailovna, 3,822,418.
Foster, Robert C.: *See—*
Buyken, Frank E.; and Foster, Robert C., 3,822,859.
Foster Wheeler Corporation: *See—*
Kochie, Joseph E., 3,823,085.
Foucault, Pierre A.; and Pellerin, Jacques P. M. Loose product metering apparatus. 3,822,809, Cl. 222-71.000.
Fougea, Edouard Marie, to Constructions Edmond Coignat S.A. Plant for filling molding cavities arranged in one or more bays. 3,822,794, Cl. 214-59.00a.
Fox, Roland Thomas Victor; Hadfield, John Roger; and Doyle, Peter, to Imperial Chemical Industries Limited. Anti-bacterial process using tetramisole. 3,823,239, Cl. 424-270.000.
Frahm, Gerd Rainer; Meisel, Franz; and Heinl, Ulrich, to NGZ Geldzahlmaschinen-ges. mbH. & Co. and Fertigungs K.G. Coin delivery machine. 3,822,713, Cl. 133-2.000.
Frain, John J. Process of making ticket packets with the tickets of each packet having consecutive and constant numbering thereon. 3,822,876, Cl. 270-1.000.
Franco, Nicholas B.: *See—*
Hammond, Philip D.; and Franco, Nicholas B., 3,823,174.
Frank, Fred Richard, to Upjohn Company, The. Increasing hen eggshell thickness with 25-hydroxycholecalciferol compounds. 3,823,237, Cl. 424-236.000.
Frankfurt, Sandor: *See—*
Martin, Richard E.; Gildone, Anthony M.; and Frankfurt, Sandor, 3,822,716.
Franklin, James W. Spacer elements for corner farming system. 3,822,858, Cl. 249-194.000.
Franklin Mint, Inc., The: *See—*
Ringle, Louis A.; and Brown, Jack M., Jr., 3,822,782.
Frankort, Martinus Petrus Carolus Gerardus Maria; De Gier, Nico; Hulst, Aloysius Petrus Albertus Johannes; and De Jong, Martijn, to U.S. Philips Corporation. Method for the ultrasonic welding of wires on the metal surface of a support. 3,822,465, Cl. 29-47.100.
Frayer, Paul D.; and Lutzmann, H. Harald, to Molecular Design Incorporated. Composite barrier film and method of making the same. 3,823,061, Cl. 161-254.000.
Frederick, Leonard L. Jet sheet and circular pile with water hammer assist. 3,822,557, Cl. 61-53.000.
Freeland Gauge Company: *See—*
Minix, William A., 3,822,584.
Freudenberg, Carl, Patent Abteilung, Firma: *See—*
Chvapil, Milos, 3,823,212.
Freudenberger, Dieter: *See—*
Fernholz, Hans; and Freudenberger, Dieter, 3,823,193.
Freudenberger, Volker; and Jakob, Franz, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Luciust Bruning. Tribenzylamine moiety containing polyesters. 3,823,117, Cl. 260-75.00n.
Freudenschuss, Otto, to Vockenhuber, Karl. Color film scanner with single pick-up tube. 3,823,258, Cl. 178-5.20d.
Fried, John H.: *See—*
Crabbe, Pierre; Edwards, John A.; and Fried, John H., 3,823,184.
Friedman, Sol. Surface projectile target with ball dispensing means. 3,822,887, Cl. 273-127.00d.
Friesem, Albert A., to Harris-Intertype Corporation, mesne. Multicolor display. 3,823,412, Cl. 354-100.000.
Friesen, Milo E.: *See—*
Cade, George I.; Beach, Burt L.; Friesen, Milo E.; and Phillips, Samuel R., 3,822,967.
Frishman, Daniel. Method and apparatus for electrifying pile fabrics. 3,822,447, Cl. 26-2.00e.
Fritzsche, Hellmut; Ovshinsky, Stanford R.; Shaw, Robert F.; Silver, Marvin; and Smejtek , Pavel, to Energy Conversion Devices, Inc. Bidirectional arrangement of amorphous electronic control devices. 3,823,331, Cl. 307-241.000.
Frost, C. L. & Sons, Inc.: *See—*
Frost, Charles C.; and Weis, Siegfried K., 3,822,457.
Frost, Charles C.; and Weis, Siegfried K., to Frost, C. L. & Sons, Inc. Method of making rotatable member assembly. 3,822,457, Cl. 29-159.00r.
Fuchs, Julius Jakob. Amidinothiocarbamates. 3,823,179, Cl. 260-468.00e.
Fuchs, Otto: *See—*
Schulte, Friedrich Wilhelm; Diels, Manfred; and Rosenkranz, Wilhelm, 3,822,458.
Fuji Denki Seizo Kabushiki Kaisha: *See—*
Tazaki, Kazuo; and Kobayashi, Toshiro, 3,823,041.
Fuji Photo Film Co., Ltd.: *See—*
Kato, Hirotetu; Tajima, Tatsuya; and Sato, Akira, 3,823,018.
Oku, Eitaro; Nishio, Daijiro; and Ezawa, Hirokatsu, 3,823,156.
Sato, Masamichi; Takahashi, Isoji; Komaki, Takao; and Honjo, Satoru, 3,822,670.
Fujisawa Pharmaceutical Co., Ltd.: *See—*
Morimoto, Akiro; Takasugi, Hisashi; Nakai, Yoshiharu; and Watababe, Takao, 3,823,152.
Fujita, Kinji, to Kabushiki Kaisha Suwa Seikosha. Digital wrist watch having timer function. 3,822,547, Cl. 58-152.00b.
Fukazawa, Nobuo: *See—*
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,823,004.
Fuller, Edward N.; and Bartholomew, Michael E. Chromatographic column packing. 3,822,530, Cl. 55-67.000.
Fuqua, Norman L., to Cornelius Company, The. Beverage dispensing device. 3,822,810, Cl. 222-146.0he.
Furbeck, Warren R.: *See—*
Ward, George T.; Means, John A.; Lee, Charles A.; and Furbeck, Warren R., 3,823,062.
Furnace for melting or heating metals: *See—*
Pletscher, Oskar, 3,822,873.
Furukawa Electric Co., Ltd., The: *See—*
Shii, Hikaru; and Oda, Eisuke, 3,823,210.
Gaddy, Amos L. System for inhibiting motor vehicle operation by inebriated drivers. 3,823,382, Cl. 340-53.000.
Gaeth, Rudolf: *See—*
Stastny, Fritz; Gaeth, Rudolf; and Trieschmann, Hans-Georg, 3,823,213.
GAF Corporation: *See—*
Allan, John L. H.; and Field, Nathan D., 3,823,214.
Cooney, William J., 3,823,056.
Mestetsky, Thomas S., 3,823,025.
Smith, Richard F., 3,823,160.
Gaines, Alvin M. Magnetic closure. 3,822,906, Cl. 292-251.500.
Galerne, Jean, to Eugene-Gallia, Societe Anonyme. Waving or uncurling hair with a composition containing an amino acid alkali metal carbonate. 3,823,232, Cl. 424-72.000.
Gall, Rudi: *See—*
Berger, Herbert; Gall, Rudi; Thiel, Max; Vomel, Wolfgang; and Sauer, Winfriede, 3,823,137.
Gallo, Michael R. Auto ignition system. 3,822,686, Cl. 123-148.00e.
Galvagni, John L.: *See—*
Borneman, Edmond H.; and Galvagni, John L., 3,823,339.
Ganti, Venkat Rao: *See—*
Szabo, Karoly; and Ganti, Venkat Rao, 3,823,178.
Garfinkel, Leonard. Tooth rigidity imparting device and method of implantation thereof. 3,822,472, Cl. 32-2.000.
Garick, Bordie B.: *See—*
Ward, John E., Jr.; and Garick, Bordie B., 3,823,219.
Garrett, John L., to Honeywell Inc. Cathode-ray tube non-linearity correction circuit. 3,823,338, Cl. 315-27.0gd.
Gavrilov, Viktor Mikhailovich: *See—*
Krupin, Alexandr Vasilievich; Roschin, Valentin Fedorovich; Alekhin, Leonid Petrovich; Izotov, Valery Mikhailovich; Burov, Oleg Alexandrovich; Gavrilov, Viktor Mikhailovich; Chekanov, Alexandr Ermolaevich; Lepin, Viktor Petrovich; and Vinogradov, Fedor Terntievich, 3,822,574.
Gazzola, Eles: *See—*

Gazzola, Ivaldo; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,822,644.

Gazzola, Ivaldo; deceased (by Gazzola, Eles; and Gazzola, Lanfranco; heirs); D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., to American Bank Note Company. Apparatus for maintaining registry between the plates of a multiple plate cylinder press and shets supplied thereto. 3,822,644, Cl. 101-242.000.

Gazzola, Lanfranco: *See*—
Gazzola, Ivaldo; D'Amato, Salvatore F.; and Foote, Chauncey P., Jr., 3,822,644.

Geerlof, Jan Korevaar: *See*—
Greefkes, Johannes Anton; and Geerlof, Jan Korevaar, 3,823,376.

Gegauf, Fritz, Aktiengesellschaft Bernina-Nahmaschinenfabrik: *See*—
Maag, Heinz, 3,822,659.

Gehl Company: *See*—
Martin, Virgil B., 3,822,534.

Gehlhoff, Leo F.: *See*—
Endres, Leland S.; Gehlhoff, Leo F.; and Zimmerman, Dallas D., 3,823,230.

Gehrke, Gunter: *See*—
Hederich, Volker; Gehrke, Gunter; and Bien, Hans-Samuel, 3,822,992.

Gellert, Jobst Ulrich. Hot runner heater. 3,822,856, Cl. 249-105.000.

General Battery Corporation: *See*—
Toback, Henry, 3,822,585.

General Cable Corporation: *See*—
Robinson, Daniel E.; and Schmidt, Robert A., Jr., 3,822,945.

General Computer Service, Inc.: *See*—
Welch, Johnnie Steven, 3,823,267.

General Corporation, The: *See*—
Takayama, Takeshi; Tanita, Akeshi; Hoshina, Saburo; and Ohtaguro, Tadayasu, 3,823,294.

General Electric Company: *See*—
Bailey, Ronald B., 3,823,362.
Borom, Marcus P., 3,822,601.
Gray, Richard T., 3,823,278.
Hester, William F.; and Schumacher, Frank A., 3,822,464.
Maloof, Robert E., 3,823,381.
Simon, Donald J.; and Fitzmayer, Louis H., 3,823,295.
Steen, Floyd L., 3,823,343.
Wugn, Richard A., 3,822,571.

General Tire & Rubber Company, The: *See*—
Fabris, Hubert Jakob; and Maxey, Edwin Morgan, 3,823,096.

General Zipper Corporation: *See*—
Johns, Max F., 3,822,444.

George, John Barrett, to RCA Corporation. Television automatic gain control circuitry providing for compatible control of VHF tuner and UHF tuner. 3,823,379, Cl. 325-405.000.

George, Samuel H. Adjustable backrest for a seat for cycles. 3,822,917, Cl. 297-195.000.

Geotel, Inc.: *See*—
Muehlberger, Erich, 3,823,302.

Germany, Michael John, to Lucas Electrical Company Limited, The. Lamp assemblies. 3,823,314, Cl. 240-41.600.

Germunson, Gary G.; and Schopp, Fredrick R., to Yakima Wire Works, Inc. Container handling apparatus. 3,822,527, Cl. 53-189.000.

Gernand, Martin O.: *See*—
Sebenik, Roger F.; and Gernand, Martin O., 3,823,011.

Getz, Edward J.; and Barbieri, Thomas, to Westinghouse Electric Corporation. Sleeve container for lamp bulbs or the like, and resulting package. 3,822,785, Cl. 206-422.000.

Geurtsen, Friedrich H.; and Wochner, Fred J., to Dennison Manufacturing Company. Method of molding a turret. 3,823,218, Cl. 264-162.000.

Ghelfi, Salvatore. Incinerating furnace for fluid and sludged refuse. 3,822,653, Cl. 110-7.00r.

Ghelfi, Salvatore. Burner for burning various liquid and gaseous combustibles or fuels. 3,822,654, Cl. 110-7.00s.

Gidaspow, Dimitri; Lyczkowski, Robert W.; and Baker, Bernard S., to Institute of Gas Technology. Continuous bleed fuel cells. 3,823,038, Cl. 136-86.00r.

Gilbert, Barrie, to Tektronix, Inc. Current steering network. 3,823,386, Cl. 340-172.000.

Gildone, Anthony M.: *See*—
Martin, Richard E.; Gildone, Anthony M.; and Frankfurt, Sandor, 3,822,716.

Gillemot, George W.: *See*—
Thompson, John T.; and Gillemot, George W., 3,822,784.

Gillette, Robert H. Honing tool. 3,822,515, Cl. 51-204.000.

Gilliatt, Charles L., to Raytheon Company. Dielectric heating apparatus. 3,823,293, Cl. 219-10.410.

Gilson, John L.; and Strachan, Gail L., to Dick, A. B., Company. Water emulsion paste stencil ink. 3,823,020, Cl. 106-30.000.

Ginsburgh, Irwin: *See*—
Keller, Billy D.; Ginsburgh, Irwin; and Wright, Lawrence T., 3,822,583.

Giordano, Carmelo; Esposito, Renato; and Randazzo, Giacomino, to Baxter Laboratories, Inc. Removal of nitrogenous waste products with polyaldehydes. 3,823,233, Cl. 424-180.000.

Gist-Brocades N.V.: *See*—
van der Stelt, Cornelis, 3,823,155.

Giuffre, George Joseph: *See*—
Di Fazio, James Joseph; Giuffre, George Joseph; and Zingerman, James Rodney, 3,823,016.

Givaudan Corporation: *See*—
Oberhansli, Peter, 3,823,190.

GKN Transmissions Limited: *See*—
Fisher, Leslie George, 3,822,570.
Pagdin, Brian Colin, 3,822,922.

Glacier Industries, Inc.: *See*—
Wight, Edward M., 3,822,623.

Gladrow, Elroy M., to Esso Research and Engineering Company. Process for preparing cracking catalysts having improved regeneration properties. 3,823,092, Cl. 252-455.00z.

Glasgow, David G.: *See*—
McClung, Charles E.; and Glasgow, David G., 3,823,060.

Glass, Marvin I.: *See*—
Terzian, Reuben; McKay, Robert S.; and Glass, Marvin I., 3,822,880.

Glaxo Laboratories Limited: *See*—
Clark, John Colin; and Underwood, William George Elphinstone, 3,823,140.
Underwood, William George Elphinstone, 3,823,139.

Glenat, Henri: *See*—
Cordelle, Michel; Crescini, Jean; Glenat, Henri; and Salvi Antoine, 3,823,364.

Global Marine Inc.: *See*—
Blankenship, Owen D., 3,822,558.

GMF Inc.: *See*—
Martin, Richard E.; Gildone, Anthony M.; and Frankfurt, Sandor, 3,822,716.

Gogarty, William B., to Marathon Oil Company. Use of viscoelastic fluids for mobility control. 3,822,746, Cl. 166-252.000.

Gogliano, Joseph A., to Grace, W. R. & Co. Process for forming a strippable coating. 3,823,024, Cl. 117-6.000.

Golan, Kenneth F., to Caterpillar Tractor Company. Speed sensitive control system for slipping clutch. 3,822,770, Cl. 192-103.00f.

Golborn, Peter; and Duffy, James J., to Hooker Chemical Corporation. N-Phosphonomethyl amides. 3,823,206, Cl. 260-932.000.

Goldberg, Carl. Model airplane propeller spinner. 3,822,963, Cl. 416-245.000.

Goldberg, Kenneth M. Credit card verifier. 3,823,308, Cl. 235-61.70b.

Goldfischer, Lester I., to Singer Company, The. Velocimeter. 3,822,940, Cl. 356-28.000.

Goldsby, Arthur R., to Texaco Inc. Removal of tertiary olefins from hydrocarbon compositions containing secondary olefins. 3,823,198, Cl. 260-677.00a.

Goodyear Tire & Rubber Company, The: *See*—
Perry, Dale C., 3,823,121.

Gordon, William M., III, to International Business Machines Corporation. High performance ink jet nozzle. 3,823,408, Cl. 346-140-.

Gottwald, Leo KG: *See*—
Eiler, Peter, 3,822,791.

Gouirand, Rene, to Mercadante, Joseph. Air suspension with tapered air bag. 3,822,908, Cl. 293-68.000.

Grace, W. R. & Co.: *See*—
Gogliano, Joseph A., 3,823,024.

Grace, W. R., and Co.: *See*—
Dighe, Shirkant V., 3,823,191.

Graeper, Michael R., to Plastico, Inc. Rotational molding apparatus. 3,822,980, Cl. 425-429.000.

Graf, Robert J.: *See*—
Andreaggi, Joseph R.; Graf, Robert J.; and Relis, Matthew J., 3,823,405.

Grafstein, Daniel: *See*—
Barnes, Robert L.; and Grafstein, Daniel, 3,823,095.

Grahn, Per Goran, to Kommanditgolaget United Stirling (Sweden) AB & Co. Hot gas engine heater heads. 3,822,553, Cl. 60-517.000.

Grant, Norman H.; Alburn, Harvey E.; and Fenichel, Richard L., to American Home Products Corporation. N-aminoacyl-substituted insulins. 3,823,125, Cl. 260-112.700.

Gray, Richard T., to General Electric Company. Aerodynamically adjustable pantograph. 3,823,278, Cl. 191-66.000.

Greefkes, Johannes Anton; and Geerlof, Jan Korevaar, to U.S. Philips Corporation. Transmitter for the transmission of analogue signals by pulse code. 3,823,376, Cl. 325-141.000.

Green Cross Corporation, The: *See*—
Samejima, Masayoshi; Sugimoto, Isao; Suzuki, Akira; Koida, Yoshiyuki; Hirata, Goichi; and Tsukamoto, Goro, 3,823,091.

Greenway, John Michael: *See*—
Heap, Harrison; Coats, Robert Reid; and Greenway, John Michael, 3,822,539.

Grethe, Guenter; and Uskokovic, Milan Radoje, to Hoffmann-La Roche Inc. Process for quinine, quinidine and analogs thereof. 3,823,146, Cl. 260-284.000.

Grewe, Ferdinand: *See*—
Buchel, Karl Heinz; Grewe, Ferdinand; and Scheinpflug, Hans, 3,823,236.

Gricol, Joseph D.: *See*—
Vitale, Martin H.; and Gricol, Joseph D., 3,823,243.

Griffin, Ira L. & Sons, Inc.: *See*—
Griffin, Ira L., Jr., 3,822,451.

Griffin, Ira L., Jr., to Griffin, Ira L. & Sons, Inc. Size box. 3,822,451, Cl. 28-28.000.

Grigsby Barton, Inc.:: *See*—
Barton, William Forbes; and Reese, William E., 3,823,328.

Grimes, Gary S., to Questor Corporation. Infant feeding means. 3,822,806, Cl. 215-11.00e.

Grimmer, Klaus Jurgen. Unbalanced vibrator for an oscillating conveyor or a vibrating screen. 3,822,604, Cl. 74-87.000.

Grindeland, Gordon L. Apparatus for removing foreign particles from a lithographic press. 3,822,642, Cl. 101-425.000.

Groves, Thomas Conrad. Hydraulic timing device. 3,822,544, Cl. 58-2.000.

Gruner, Michael. Shoe having heel with replaceable insert member. 3,822,709, Cl. 128-614.000.

GTE Automatic Electric Laboratories Incorporated: *See*—
Beeman, Robert H.; and Cleary, Robert T., 3,823,273.

GTE Sylvania Incorporated: *See*—
Speigel, Kenneth, 3,822,454.
Speigel, Kenneth, 3,823,080.

Guitar, Pressley H. Coin magic device. 3,822,879, Cl. 272-8.00r.

Gulf Research & Development Company: *See*—
Doyle, William C., Jr.; and Kirkpatrick, Joel L., 3,823,005.

Guppy, John R., to British Aircraft Corporation. Camera tube gain control circuit. 3,823,263, Cl. 178-7.200.

Gusman, Moisei Timofeevich: *See*—
Ogly, Asan-Nuri Abdulla; Baldenko, Dmitry Fedorovich; Gusman, Moisei Timofeevich; Kochnev, Anatoly Mikhailovich; and Nikomarov, Samuil Solomonovich, 3,822,972.

Gustav Memminger Verfahrenstechnik fur die Maschenindustrie, Firma: *See*—
Fecker, Josef, 3,822,833.

Gutschik, Ernst: *See*—
Bodesheim, Ferdinand; Radlmann, Eduard; Kohler, Armin; Gutschik, Ernst; and Nischk, Gunther, 3,823,123.

Guy, Richard E. Powered air-purifying respirator helmet. 3,822,698, Cl. 128-142.700.

Habib, Emile E., to Deering Milliken Research Corporation. Process for modifying keratin fibers to reduce relaxation and felting shrinkage and product produced thereby. 3,822,995, Cl. 8-127.500.

Hack, Helmuth: *See*—
Lorenz, Walter; Eue, Ludwig; and Hack, Helmuth, 3,823,006.
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,823,004.

Hackett, Robert S. Heating system. 3,822,740, Cl. 165-45.000.

Hadfield, John Roger: *See*—
Fox, Roland Thomas Victor; Hadfield, John Roger; and Doyle, Peter, 3,823,239.

Haferkamp, Heinz; and Peterson, Gunter, to Deutsche Schachtbau-und Tiefbohrgesellschaft m.b.H. Ground surfaces. 3,822,955, Cl. 404-72.000.

Haferl, Peter Eduard, to RCA Corporation. Cascode video output feedback amplifier. 3,823,264, Cl. 178-7.50r.

Hahn, Robert E.: *See*—
Robinson, John W.; Howard, John W.; Hahn, Robert E.; and Hemming, Donald C., 3,822,993.

Hakodate Geimo Sengu Kabushiki Kaisha: *See*—
Morita, Katsuo; Hashimoto, Sadao; and Miyamoto, Horoshi, 3,822,662.

Hall, Mitchell Adam, to Monarch Tool & Manufacturing Company. Vending machine with variable capacity coin traps. 3,822,775, Cl. 194-63.000.

Hallberg, Gert Benny. Automatically releasable safety device for vehicles. 3,822,896, Cl. 280-150.0ab.

Hammond, Philip D.; and Franco, Nicholas B., to Olin Corporation. Process for preparation of aromatic isocyanates. 3,823,174, Cl. 260-453.0pc.

Handl, Alfons, to Fa. Rugel & Lutz Maschinenfabrik. Viscous material applicator, especially paint applicator. 3,822,948, Cl. 401-146.000.

Hankins, Norman K.: *See*—
De Monsy, Richard L.; and Hankins, Norman K., 3,823,250.

Hansen, Charles M.: *See*—
Wismer, Marco; Pohan, Charles; Miller, Kenneth E.; and Hansen, Charles M., 3,823,027.

Hansen, Jack T.: *See*—
Butler, Richard A., Jr.; Hansen, Jack T.; Rump, August R.; and Arendt, Ruby R., 3,822,838.

Hansen, James E.; and La Pointe, Joel P., to Cutler-Hammer, Inc. Defrost sensor and control circuit. 3,822,560, Cl. 62-140.000.

Hanson, Donald N.; and Bell, Alexis T., to University of California, The Regents of the. Method and apparatus for measuring the total surface area concentration of particles entrained in a gas. 3,823,372, Cl. 324-71.00r.

Happy Shokai Co., Ltd.: *See*—
Ohfuji, Tadao, 3,822,495.

Harding James, to Union Carbide Corporation. Aqueous dispersions based on heat-hardenable phenolic resins containing a gum mixture stabilizing agent. 3,823,103, Cl. 260-17.200.

Hardt, Jean, to Aluminum Suisse S.A. Redrawing apparatus. 3,822,576, Cl. 72-348.000.

Hargett, Lawrence, to Philmont Manufacturing Company. Quilted fabric and method of producing the same. 3,823,052, Cl. 156-220.000.

Harris, David W.; and O'Connor, Chadwell. Water cooled skin kiln for waste disposal. 3,822,651, Cl. 110-10.000.

Harris-Intertype Corporation, mesne: *See*—
Friesem, Albert A., 3,823,412.

Hartman Metal Fabricators, Inc.: *See*—
Salsburg, Frederic S.; and Loomer, Weston R., 3,822,795.

Hasegawa, Goro; Aoyagi, Masao; and Mashimo, Yukio, to Canon Kabushiki Kaisha. Flash disabling interlock responsive to interchangeable lens selection. 3,823,411, Cl. 354-33.000.

Hasegawa, T. Company, Ltd.: *See*—
Minato, Sachio; Mikami, Yoichiro; and Hayashi, Kazuo, 3,823,070.

Hashimoto, Sadao: *See*—
Morita, Katsuo; Hashimoto, Sadao; and Miyamoto, Horoshi, 3,822,662.

Hastings Manufacturing Company: *See*—
Shaltis, Robert J.; and Woltjer, David, 3,822,787.

Haubein, Albert Howard, to Hercules Incorporated. Certain 0-(2-pyrimidyl) phosphates and their use as insecticides. 3,823,235, Cl. 424-200.000.

Hauck, Franz; and Poppel, Joachim, to Bosch, Robert, G.m.b.H. Automotive engine exhaust gas composition sensing apparatus. 3,822,581, Cl. 73-23.000.

Havas, Pal Geza, to U.S. Philips Corporation. Arrangement provided with at least two combustion flash bulbs. 3,823,344, Cl. 317-80.000.

Haver, Sandford A.: *See*—
Roberts, Karl H.; and Haver, Sandford A., 3,823,057.

Haverberg Auto Laundry Equipment Co. Inc.: *See*—
Van Brakel, Russel A., 3,822,431.

Hayashi, Kazuo: *See*—
Minato, Sachio; Mikami, Yoichiro; and Hayashi, Kazuo, 3,823,070.

Hayes, Claude Cecil, Jr.: *See*—
Arian, Charles Mourad; Mahler, Hans Hermann; Hayes, Claude Cecil, Jr.; and Tanner, Hal W., Jr., 3,823,028.

Hazel J. Frederic: *See*—
Jones, Susan B. [illegible]an, Edwin B.; Jones, Thomas C.; and Hazel J. Frederic, 3,8[illegible]127.

Heap, Harrison; Coats, Robert Reid; and Greenway, John Michael, to Imperial Chemical Industries Limited. Threadable yarn treatment tube. 3,822,539, Cl. 57-34.00r.

Heath, Gerald. Mud flap. 3,822,897, Cl. 280-154.50r.

Hebeisen, Richard; and Doane, Patrick King, to Kimball Piano & Organ, Electronic Division. Chord playing organ including a circuit arrangement for adding fill-in notes to the solo part. 3,823,246, Cl. 84-1.170.

Hebert, Remy: *See*—
Morival, Genevieve; and Hebert, Remy, 3,823,105.

Hederich, Volker; Gehrke, Gunter; and Bien, Hans-Samuel, to Bayer Aktiengesellschaft. Exhaustion dyeing process with anthraquinon dyestuffs in water immiscible organic solvent. 3,822,992, Cl. 8-39.000.

Hedman, John Gunnar. Anchor. 3,822,664, Cl. 114-208.00r.

Hehl, Karl. Injection unit for an injection molding machine. 3,822,975, Cl. 425-107.000.

Heidrich, Paul F.; Kuhn, Lawrence; and Lean, Eric G., to International Business Machines Corporation. Electronically tunable optical filter using acoustic waves. 3,822,929, Cl. 350-161.000.

Heilhecker, Joe K.: *See*—
Maurer, William C.; Heilhecker, Joe K.; and Lock, Everett H., 3,822,902.

Heinl, Ulrich: *See*—
Frahm, Gerd Rainer; Meisel, Franz; and Heinl, Ulrich, 3,822,713.

Heithecker, Gary; Loseke, Melvin R.; and Ferguson, Joe, to Mesco Metal Buildings Corporation. Electrical connector for interior wall panels. 3,823,251, Cl. 174-48.000.

Heitman, Richard E.; and Norris, Richard C., to Little, Arthur D., Inc. Data processor with selectable operating modes. 3,823,389, Cl. 340-172.500.

Heller, Martin G.: *See*—
Heller, Martin G.; Kelly, Donald D.; and Cheney, Richard L. (said Kelly, Donald D. and said Cheney, Richard L. assors. to), 3,822,728.

Heller, Martin G.; Kelly, Donald D.; and Cheney, Richard L., said Kelly, Donald D. and said Cheney, Richard L. assors. to Heller, Martin G. Apparatus for flattening and trimming the leads of electrical components. 3,822,728, Cl. 140-1.000.

Heller, Watter D.; and Blake, William W., to Caterpillar Tractor Company. Planetary power steer cross drive transmission and control system with lubrication passages in planet carriers. 3,822,765, Cl. 184-6.000.

Hemming, Donald C.: *See*—
Robinson, John W.; Howard, John W.; Hahn, Robert E.; and Hemming, Donald C., 3,822,993.

Henkin, Melvyn L.; and Laby, Jordan M. Automatic swimming pool cleaner. 3,822,754, Cl. 180-1.00r.

Henle, Robert A.: *See*—
Agusta, Benjamin; Bardell, Paul H.; Castrucci, Paul P.; Henle, Robert A.; and Pecoraro, Raymond P., 3,823,348.

Henson, Artel R.; and Cooperrider, Myron T., to Disco Engineering, Inc. Energy conversion module. 3,822,990, Cl. 432-222.000.

Hepworth Iron Company Limited, The: *See*—
Booth, John Frederick, 3,822,988.

Herbschleb, Jan Frederik; Komijn, Albert; and Westenberg, Hans Egbert, to I.B.I.S. Nederland N.V. Method of anchoring a bundle of reinforcing wires or strands for pre-stressed concrete, and anchoring construction. 3,822,442, Cl. 24-122.600.

Hercules Incorporated: *See*—
Haubein, Albert Howard, 3,823,235.

Hertl, Wilhelm: *See*—

Oelmayer, Reinhold; Seelos, Albert; Seitz, Helmut; Mayer, Heinz; Duell, Joseph; Hertl, Wilhelm; and Hoch, Hans-Jorg. 3,823,257.
Herzog, Hans Bernhard; and Hoppe, Rudolf, to Ciba-Geigy AG. Process for the preparation of triarylphosphites. 3,823,207, Cl. 260-976.000.
Hester, William F.; and Schumacher, Frank A., to General Electric Company. Method of joining a tube to a roll forged sheet. 3,822,464, Cl. 29-460.000.
Hetrich, Harold Arthur, to Western Electric Company, Incorporated. Fluidic masking. 3,823,048, Cl. 156-345.000.
Hexcel Corporation: *See*—
De Monsy, Richard L.; and Hankins, Norman K., 3,823,250.
Heyes, Lester P.: *See*—
Seaberg, Paul A.; and Heyes, Lester P., 3,823,170.
Heyman Manufacturing Company: *See*—
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Heyne, Clarence A.: *See*—
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Heywood, Basil Jason: *See*—
Carpenter, Keith; Heywood, Basil Jason; Parnell, Edgar William; Metivier, Jean; and Boesch, Roger, 3,823,008.
Hielema, Ralph, to Hielema-Emmons Pipe Coating Ltd. Pipe coating method. 3,823,045, Cl. 156-188.000.
Hielema-Emmons Pipe Coating Ltd.: *See*—
Hielema, Ralph, 3,823,045.
Higaki, Taiji, to Kanzaki Paper Mfg. Co., Ltd. Electro-sensitive recording blank. 3,823,034, Cl. 117-218.000.
Hildebrand, Donald A. Trimming tool for coaxial cables. 3,822,470, Cl. 30-90.100.
Hill, Charles C.; and Ross, James A., to Rohr Industries, Inc. Passive switching system. 3,822,647, Cl. 104-130.000.
Hill, William Frank, to Lucas Electrical Company Limited, The. Cooling fan operating circuits for road vehicles. 3,823,363, Cl. 322-33.000.
Hillman, Herbert H.: *See*—
Livingstone, Seabourn S.; and Hillman, Herbert H., 3,822,909.
Hine, Derek L., to Advanced Recreation Equipment Corporation. Kit for converting conventional motorcycle into snowmobile. 3,822,755, Cl. 180-5.00r.
Hinrichs, Donald R., to Reynolds Metals Company. Apparatus for making plastic film. 3,822,977, Cl. 425-326.00r.
Hirane, Seiichi: *See*—
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,823,004.
Hirashima, Takashi: *See*—
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Hirata, Goichi: *See*—
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Hirata, Yasubumi: *See*—
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Hirsch, Max. Three dimensional display. 3,822,938, Cl. 353-121.000.
Hitachi Shipbuilding and Engineering Co., Ltd.: *See*—
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Hobart Manufacturing Company, The: *See*—
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Hobo, Nobuhito; and Suzuki, Yutaka, to Nippondenso Co. Ltd. Fuel control system for fuel injection type internal combustion engine. 3,822,679, Cl. 123-32.0ea.
Hoch, Hans-Jorg: *See*—
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Hock, Fromund, to Leitz, Ernst, GmbH. Method of testing a length, angle, path difference or speed by detecting interference and apparatus therefor. 3,822,942, Cl. 356-106.00r.
Hodes, Harvey A., to United States of America, Army. Color photographic developer compositions. 3,823,017, Cl. 96-66.400.
Hodgson, Philip; Munson, Robert Thomas; and Reed, Gordon Howard, to Television Research Limited. Magnetic record apparatus with switching means to select tapes and interrupt for announcements. 3,823,414, Cl. 360-64.000.
Hoeltge, Inc.: *See*—
Benny, John R., 3,822,673.
Hoffman, Benedict J. Foot operated vehicle signalling apparatus with adjustable mechanical linkage operating mechanism. 3,823,284, Cl. 200-61.890.
Hoffman, Stanley A.; and Paxton, David J. Method for photographing a set of varying contrast radiographic X-rays. 3,822,939, Cl. 355-132.000.
Hoffmann, Irmgard: *See*—
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Hoffmann, Ruprecht: *See*—
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Ning, Robert Ye-Fong; and Sternbach, Leo Henryk, 3,823,166.
Hoglund, Nils O., to Tri-Ordinate Corporation. Cam controlled grinding machine. 3,822,511, Cl. 51-101.00r.
Hohmann, Walter; Wunderlich, Klaus; and Bien, Hans-Samuel, to Bayer Aktiengesellschaft. Anthraquinone dyestuffs containing sulphonic acid groups. 3,823,168, Cl. 260-373.000.
Holan, George, to Commonwealth Scientific and Industrial Research Organization. 1,1-Bis(phenyl)-2-nitropropanes. 3,823,192, Cl. 260-613.00r.
Hollister Incorporated: *See*—
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Hollowood, John: *See*—
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Holther, Grover P., Jr., to Electro Engineering Products Co., Inc. Bench grinder apparatus. 3,822,513, Cl. 51-168.000.
Honeywell Inc.: *See*—
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Honeywell Information Systems Inc.: *See*—
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Hooker Chemical Corporation: *See*—
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Hoorelbeke, Luc, to N.V. Bekaert S.A. Non-slip non-accumulating continuous wire drawing machine. 3,822,575, Cl. 72-288.000.
Hooreman, Michel. Analysis of proteolytic enzymes. 3,823,072, Cl. 195-103.50r.
Hopkins, Evan Leon; Hopkins, Evan Lloyd; and Wedel, Jerry L., to Hopkins Manufacturing Corporation. Orientation detection and alignment method and apparatus. 3,822,944, Cl. 356-152.000.
Hopkins, Evan Lloyd: *See*—
Hopkins, Evan Leon; Hopkins, Evan Lloyd; and Wedel, Jerry L., 3,822,944.
Hopkins Manufacturing Corporation: *See*—
Hopkins, Evan Leon; Hopkins, Evan Lloyd; and Wedel, Jerry L., 3,822,944.
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Horton, Donald J.; and Stanley-Jones, Martin L., to Canadian Patents and Development Limited. Radar cross correlator. 3,823,398, Cl. 343-5.0dp.
Hoshina, Saburo: *See*—
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Houlihan, William J., to Sandoz-Wander, Inc. Dichlora-alpha, alpha, alpha,-trifluorotoluamides. 3,823,134, Cl. 260-239.0ba.
Howard, Frank C.: *See*—
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Howard, John W.: *See*—
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Howard, Robert; Robinson, Prentice I.; and Menhennett, Herbert E., to Centronics Data Computer Corporation. Serial to parallel converter for binary signals of two differnet pulse widths. 3,823,397, Cl. 340-347.0dd.
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Huber, Keith L. Vehicle and vertical shock converter therefor. 3,822,893, Cl. 280-124.00r.
Huber, Walter E., to Dayco Corporation. Method of making an endless power transmission belt. 3,822,516, Cl. 51-326.000.
Hubner, Otto. Portable hair dryer for long hair. 3,822,483, Cl. 34-99.000.
Hudson, Lester S., to Dresser Industries, Inc. Method of making a bearing system having entrained wear-resistant particles. 3,823,030, Cl. 117-131.000.
Hugill, Douglas B.: *See*—
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Frankort, Martinus Petrus Carolus Gerardus Maria; De Gier, Nico; Hulst, Aloysius Petrus Albertus Johannes; and De Jong, Martijn, 3,822,465.
Hultdin, Gustaf Matteus; and Hultdin, Ove Anders, to Hultdins Verkstads AB. Apparatus for felling trees. 3,822,730, Cl. 144-34.00r.
Hultdin, Ove Anders: *See*—
Hultdin, Gustaf Matteus; and Hultdin, Ove Anders, 3,822,730.
Hultdins Verkstads AB: *See*—
Hultdin, Gustaf Matteus; and Hultdin, Ove Anders, 3,822,730.
Hummelshoj, Gustav Erik, to Schmidt, Thomas A/S. Casting mold with steam-heated water jacket. 3,822,855, Cl. 249-79.000.

Humphrey Research Associates: *See*—
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Humphrey, William E., to Humphrey Research Associates. Optometric apparatus and process having independent astigmatic and spherical inputs. 3,822,932, Cl. 351-17.000.
Hungerford, Daniel Comstock, to Brunswick Corporation. Anchor crown construction. 3,822,665, Cl. 114-208.00r.
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Hunter, Max R.: *See*—
Brothers, Benton H.; Christianson, William O.; Hunter, Larry L.; Hunter, Max R.; Stauder, Bob E.; and Sitler, Donald D., 3,822,598.
Hurst, Louis S., to Lloyd, Norman E. and Standard Brands Incorporated. Method for preparing adsorptive cellulose ethers. 3,823,133, Cl. 260-231.00a.
Huska, Paul: *See*—
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Idel, Vladimir Viktorovich. Bandsaw grinder. 3,822,613, Cl. 76-37.000.
Igehara, Hiromi: *See*—
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Ignatovich, Vladimir Alexeevich: *See*—
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Iida, Teiji; and Yoshimura, Noboru, to Toyota Jidosha Kogyo Kabushiki Kaisha. Reclining seat. 3,822,914, Cl. 297-355.000.
Ilenko, Boris Kuzmich: *See*—
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Ishii, Takemochi; Koshi, Masaki; and Iguchi, Masakazu, to Japan Society for the Promotion of Machine Industry. Guiding system for steering a vehicle. 3,822,648, Cl. 104-245.000.
Iten, Paul D.: *See*—
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Jacoby, Charles H., to Akzona Incorporated. In-situ extraction of mineral values from ore deposits. 3,822,916, Cl. 299-4.000.
Jacquelin, Guy J., to Novipro. Fibrous structures. 3,823,059, Cl. 161-150.000.
Jagid, Bruce E., to Power Conversion, Inc. Battery sealing method receptive to injection filling. 3,823,040, Cl. 136-162.000.
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Janirek, Vladislav; Miculka, Zdenek; and Duba, Jan, to Vyzkunmy ustav Kozedelny. Method of surface treating discontinuous sheet materials. 3,822,572, Cl. 69-39.000.
Jankelson, Bernard: *See*—
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Jansen, Alex G. Cement compositions containing soda lime glass. 3,823,021, Cl. 106-97.000.
Jansen, Alexander Bertus Arnold; Hollowood, John; and Wilson, Alan Brian. 4-Biphenylyl isoquinoline derivatives. 3,823,148, Cl. 260-289.00r.
Janson, Stig; and Janson, Ulf Stig. Milking installation for cow stables. 3,822,672, Cl. 119-14.110.
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Janssen, Donovan M.: *See*—
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Jederstrom, Gustaf L., to Pharmacia AB. Inhalation compositions containing 7-(B-hydroxypropyl) -theophylline. 3,823,229, Cl. 424-45.000.
Jeffers, Frederick J., to Bell & Howell Company. Methods, apparatus and media for magnetically recording information. 3,823,406, Cl. 346-74.100.
Jepsen, Jens Thomsen, to K.J. Maskinfabriken A/S. Junction switch for conveying systems. 3,822,777, Cl. 198-31.0ab.
Jerpbak, Selmer L. Device and method for facilitating the filling of flexible trash bags. 3,822,524, Cl. 53-37.000.
Jersey Nuclear Company, mesne: *See*—
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Jirkovsky, Ivo L., to American Home Products Coproation. Derivatives of 3-amino-2-cyclohexene-1-one. 3,823,189, Cl. 260-577.000.

Johansson, Ernst Lennar; and Lumen, Karl Lennart Gosta, to Sandvik Aktiebolag. Drill rod coupling. 3,822,952, Cl. 403-343.000.
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Johnson, Earl S. Sport shoe conversion attachment. 3,822,489, Cl. 36-2.50c.
Johnson, George C., to Mobil Oil Corporation. Recovery of potable water from sea and brackish water by selective solvent extraction. 3,823,000, Cl. 210-22.000.
Johnson, J. Wallace, to Liquid Level Lectronics, Inc. Level control. 3,822,933, Cl. 251-65.000.
Johnson, Jeffrey O., to BRS, Inc. Athletic shoe having upper sections of different materials and cover strip under junciton between such sections. 3,822,488, Cl. 36-2.5am.
Johnson, Lowell E.: *See*—
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Johnson, Morris A.; Reedy, James D.; and Yang, Kang, to Continental Oil Company. Catalytic exchange reaction between aliphatic bromides and alpihatic alcohols. 3,823,194, Cl. 260-642.000.
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Johnston, Paul R.: *See*—
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Johnstone, Edward Townshend Carruthers; and Brunton, Robert Sidney, to Commonwealth Industrial Gases Limited, The. Method and apparatus for feeding particulate materials to furnaces and the like. 3,823,012, Cl. 75-51.000.
Jones, Alun R.; and Richter, Warren F., to Atomic Energy of Canada Limited. Radiation dosage measuring apparatus and method for thermoluminescent dosimeters. 3,823,323, Cl. 250-484.000.
Jones, Cecil R., to Transfer Systems Incorporated. Apparatus for selectively transporting fuel elements. 3,823,065, Cl. 176-39.000.
Jones, James J., to Texas Instruments Incorporated. Slip and ramp signal generator and comparator for a vehicle skid control braking system. 3,822,921, Cl. 303-21.0be.
Jones, Nelson A.: *See*—
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Jones, Russell J. Bib and combination thereof with bite tray. 3,822,473, Cl. 32-17.000.
Jones, Susan B.; Kalan, Edwin B.; Jones, Thomas C.; and Hazel J. Frederic, to United States of America, Agriculture. Nutritional iron-protein complexes from waste effluents. 3,823,127, Cl. 260-112.00r.
Jones, Thomas C.: *See*—
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Joslyn, Wallace G. Foaming unsaturated polyester resins. 3,823,098, Cl. 260-2.50n.
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Joyce, Robert D., to Vergas Manufacturing Company. Finger ring holder and display device. 3,822,849, Cl. 248-350.000.
Juchniewicz, Romuald, to Politechnika Gdanska. Method of protecting tin-packings against corrosion and making them glossy. 3,822,998, Cl. 21-2.70a.
Jungers, Jean, to Ste Nouvelle des Ventilateurs G. Mouzon. Devices for transporting objects over long distances by induced air. 3,822,918, Cl. 302-2.00r.
Jungling, Alfred: *See*—
Daester, Henri H.; and Jungling, Alfred, 3,822,866.
Jureit, John Calvin, to Automated Building Components, Inc. Measuring and marking apparatus for wooden structural elements. 3,822,475, Cl. 33-76.00r.
Jutila, Lasse: *See*—
Paavola, Jorma; and Jutila, Lasse, 3,823,356.
Kabushiki Kaisha Daikin Seisakusho: *See*—
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Kabushiki Kaisha Seikosha: *See*—
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Yoshino, Miyao, 3,822,606.
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Jones, Susan B.; Kalan, Edwin B.; Jones, Thomas C.; and Hazel J. Frederic, 3,823,127.
Kalb, Aaron Joseph; and Yariv, Joseph, to Yeda Research and Development Co. Ltd. Glutaraidehyde insolubilized concanavalin a in crystalline form. 3,823,129, Cl. 260-123.500.
Kalotay, Paul Zoltan; and Fitzpatrick, George Aloysious, to International Telephone and Telegraph Corporation. Pulse train modification circuit. 3,823,310, Cl. 235-151.340.
Kame, Masaharu; Koda, Hideyuki; and Igehara, Hiromi, to Nippon Oils and Fats Company Limited. Production of powdered detergent. 3,823,090, Cl. 252-89.000.
Kampe, Andrew J., to Raychem Corporation. Resistivity variance reduction. 3,823,217, Cl. 264-105.000.
Kaneda, Yasuyoshi: *See*—
Kawakami, Tsuneta; Mizutani, Seiki; and Kaneda, Yasuyoshi, 3,822,640.
Kanzaki Paper Mfg. Co., Ltd.: *See*—
Higaki, Taiji, 3,823,034.
Karlik, Steven, Jr., to National Components Industries, Inc. Solid electrolytic capacitor. 3,823,347, Cl. 317-230.000.
Karten, Marvin J., to USV Pharmaceutical Corporation. 0-(Substituted carbamoyl)-3-pyrrolidinopropio and butycophenone oximes. 3,823,159, Cl. 260-326.300.
Kasahara, Keisuko, to Kabushiki Kaisha Maekawa Seisakusho. Refrigerating apparatus. 3,822,567, Cl. 62-473.000.
Katakura, Shiro; and Nojima, Shinichi, to Tokico Ltd. Fuel supplying apparatus having a reversible plate type flow indicator. 3,822,808, Cl. 222-33.000.
Kato, Hirotetu; Tajima, Tatsuya; and Sato, Akira, to Fuji Photo Film Co., Ltd. Fogged, direct-positive silver halide emulsion containing a thallium salt and a dye containing a cycloheptatriene ring. 3,823,018, Cl. 96-101.000.
Kawachi, Jyousuke: *See*—
Morita, Toshimitsu; and Kawachi, Jyousuke, 3,822,603.
Kawakami, Tsuneta; Mizutani, Seiki; and Kaneda, Yasuyoshi, to Kabushiki Kaisha Seikosha. Electromagnetically-actuated printing mechanism. 3,822,640, Cl. 101-93.00c.
Kawasaki, Masahiro: *See*—
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Kay, Edward Leo: *See*—
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Kaye, Gordon E.; and Sussingham, George, to Mallory, P. R., & Co., Inc. Battery package with end of life condition indicator. 3,823,367, Cl. 324-29.500.
Keane, Patrick J.; Moor, Alan B.; and Routley, Michael J., to British Aircraft Corporation. Communication systems. 3,823,377, Cl. 325-143.000.
Kelle Aktiengesellschaft: *See*—
Koblo, Jochen, 3,822,865.
Keller, Billy D.; Ginsburgh, Irwin; and Wright, Lawrence T., to Standard Oil Company. Method for determining octane rating of fuels under road conditions. 3,822,583, Cl. 173-35.000.
Keller, Karl Heinz: *See*—
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Heller, Martin G.; Kelly, Donald D.; and Cheney, Richard L., 3,822,728.
Kelly, Frederick Griffin. Heat engine. 3,822,554, Cl. 60-655.000.
Kelly, Robert C., to Upjohn Company, The. Process for preparing bicyclic lactone diols. 3,823,163, Cl. 260-343.300.
Kenco Corporation: *See*—
Russell, Robert J.; Young, William; and Nuss, Barry D., 3,822,523.
Kennedy, Robert J.; and Kennedy, Rose M. Garbage can holder. 3,822,845, Cl. 248-147.000.
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Kennedy, Robert J.; and Kennedy, Rose M., 3,822,845.
Kennedy, Wiley T.: *See*—
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Kernforschungsanlage Julich Gesellschaft mit beschrankter Haftung: *See*—
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Ketelaar, Peter, to U.S. Philips Corporation. Circuit for generating a sawtooth-shaped current through a coil by compensating for deflection coil resistance. 3,823,340, Cl. 315-27.0gd.
Kettering Scientific Research, Inc.: *See*—
Treharne, Richard W.; and Wright, David E., 3,823,081.
Keymer, Mark W., to Malco Products, Inc. Hacksaw frame. 3,822,731, Cl. 145-33.00a.
Keys, Gary L. Weed barrier for fencing. 3,822,864, Cl. 256-32.000.
Khokhlov, Anatoly Matveevich: *See*—
Makarov, Nikolai Alexandrovich; Maximov, Mikhail Grigorievich; and Khokhlov, Anatoly Matveevich, 3,822,968.
Kidde, Walter, & Company, Inc.: *See*—
Walbridge, Lyman H., 3,822,981.
Kilian, Rodolfo G. Particle separation system. 3,822,529, Cl. 55-1.000.
Kimball Piano & Organ, Electronic Division: *See*—
Hebeisen, Richard; and Doane, Patrick King, 3,823,246.
Kimura, Sadao: *See*—
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Kimura, Tadasu; Sunamori, Takashi; and Kimura, Sadao, to Mitsubishi Rayon Co., Ltd. Method for preparing water-soluble or dispersible coating composition and method for controlling coating bath containing the same. 3,823,106, Cl. 260-29.4ua.

Kindness, Stanley A. Cover for swimming pools and the like. 3,822,420, Cl. 4-172.140.

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King-Seely Thermos Co.: *See*—
Bell, Vernon D., 3,822,905.

Kingsbury, Herbert K.: *See*—
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Kirby, Russell B., Jr.; and Wing, Stephen C., to Minnesota Mining and Manufacturing Company. Precision molded refractory articles. 3,823,002, Cl. 29-182.100.

Kirk and Blum Manufacturing Co., The: *See*—
Weisgerber, Harold W., 3,822,532.

Kirkpatrick, Joel L.: *See*—
Doyle, William C., Jr.; and Kirkpatrick, Joel L., 3,823,005.

Kishino, Shigeo: *See*—
Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, 3,823,004.

Kitamura, Tsutomu, to Matsushita Electric Industrial Co., Ltd. Remote control system utilizing F.S.K. and frequency sequence discriminator means. 3,823,385, Cl. 340-171.00r.

Kiuchi, Mitsuyuki: *See*—
Amagami, Keizo; Mori, Hazime; Kobayashi, Takao; Kiuchi, Mitsuyuki; and Ogino, Yoshio, 3,823,296.

K.J. Maskinfabriken A/S: *See*—
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Knapp, Charles F.; and Eades, George S., to University of Kentucky Research Foundation, The, mesne. Dynamic childbirth simulator for teaching maternity patient care. 3,822,486, Cl. 35-17.000.

Knight, Richard Langham Castle; and O'Blenes, George H. Apparatus for measuring the hardness of material. 3,822,588, Cl. 73-81.000.

Knight, Robert C.: *See*—
Smith, E. D.; and Knight, Robert C., 3,822,970.

Knights, Richard Northan; and Shore, Robert Alexander, to Imperial Metal Industries (Kynoch) Limited. Method and apparatus for cutting elongate articles. 3,822,621, Cl. 83-23.000.

Knobel, Kenneth: *See*—
Balzer, Winton E.; and Knobel, Kenneth, 3,823,054.

Kobayashi, Takao: *See*—
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Kobayashi, Toshiro: *See*—
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Kobayashi, Yoshimichi: *See*—
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Koblo, Jochen, to Kelle Aktiengesellschaft. Apparatus for moving substances. 3,822,865, Cl. 259-72.000.

Koch, George B. Alphabet block display and toy. 3,822,487, Cl. 35-35.00j.

Kochie, Joseph E., to Foster Wheeler Corporation. Desorbing petroleum hydrogenation catalysts. 3,823,085, Cl. 208-216.000.

Kochnev, Anatoly Mikhailovich: *See*—
Ogly, Asan-Nuri Abdulla; Baldenko, Dmitry Fedorovich; Gusman, Moisei Timofeevich; Kochnev, Anatoly Mikhailovich; and Nikomarov, Samuil Solomonovich, 3,822,972.

Koda, Hideyuki: *See*—
Kame, Masaharu; Koda, Hideyuki; and Igehara, Hiromi, 3,823,090.

Koeller, Charles W.; and Chan, Stephen J. C., to National Cash Register Company, The. Inhibit and reset circuit. 3,823,359, Cl. 321-11.000.

Kofink, Siegfried, to Eberspacher, J. Space heater particularly for motor vehicles. 3,822,690, Cl. 126-110.00b.

Koga, Yoshihiro: *See*—
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Kohling, Rolf: *See*—
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Komaki, Takao: *See*—
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Komijn, Albert: *See*—
Herbschleb, Jan Frederik; Komijn, Albert; and Westenberg, Hans Egbert, 3,822,442.

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Kommanditgolaget United Stirling (Sweden) AB & Co.: *See*—
Grahn, Per Goran, 3,822,553.

Kommanditoblaget United Stirling (Sweden) AB & Co.: *See*—
Palmgren, Jan Ragnar, 3,822,552.

Kondo, Tatsuo; and Murata, Masae, to Victor Comapny of Japan Limited. Trip actuation device for an automatic record player. 3,822,888, Cl. 274-1.001.

Kone-Lamminen Oy: *See*—
Paavola, Jorma; and Jutila, Lasse, 3,823,356.

Kononenko, Vadim Grigorievich; Fedosenko, Igor Grigorievich; and Chernyavsky, Anatoly Stepanovich. High-speed counterstrode hammer. 3,822,579, Cl. 72-407.000.

Koppers Company, Inc.: *See*—
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Korthe Engineering Corporation: *See*—
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Kotoc, Stefan, to Ustav pro vyzkum motorovych vozidel. Connecting rod. 3,822,609, Cl. 74-579.00e.

Kovacevic, Radoslav. Tool for use as jar and bottle opener. 3,822,614, Cl. 81-3.420.

Kovalevich, Evgeny Vladimirovich: *See*—
Andoniev, Dergei Mikhailovich; Alexandrov, Nikolai Nikitovich; Klochnev, Nikolai Ivanovich; Kovalevich, Evgeny Vladimirovich; Kudinov, Gennady Alexandrovich; Kutsykovich, Dorina Borisovna; Kulikov, Vasily Ivanovich; and Filipiev, Vladimirovich, 3,822,736.

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Kowalski, Robert J. Archery bow sight. 3,822,479, Cl. 33-265.000.

Kozik, Andrew F.: *See*—
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Krause, Gerhard, to Siemens Aktiengesellschaft. Circuit arrangement for exposure measuring devices. 3,823,318, Cl. 250-214.00p.

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Krellmann, Herbert: *See*—
Bohm, Heinz-Dieter; Ruggen, Werner; Krellmann, Herbert; and Schluckebier, Wilhelm, 3,822,568.

Kroeger, Everett C., to VueTech Corporation. Slide projector with means to eliminate jams. 3,822,937, Cl. 353-114.000.

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Krupin, Alexandr Vasilievich; Roschin, Valentin Fedorovich; Alekhin, Leonid Petrovich; Izotov, Valery Mikhailovich; Burov, Oleg Alexandrovich; Gavrilov, Viktor Mikhailovich; Chekanov, Alexandr Ermolaevich; Lepin, Viktor Petrovich; and Vinogradov, Fedor Terntievich. Ring-rolling mill. 3,822,574, Cl. 72-110.000.

Krupp, Fried., Gesellschaft mit beschrankter Haftung: *See*—
Thoma, Friedrich; and Krusche, Peter, 3,822,540.

Krusche, Peter: *See*—
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Kuebler, Richard M.: *See*—
Kuehn, Arthur C.; and Kuebler, Richard M., 3,822,504.

Kuehn, Arthur C.; and Kuebler, Richard M. Aquaculture structure and method. 3,822,504, Cl. 47-1.200.

Kuhlmorgen, Joachim: *See*—
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Kuhn, Lawrence: *See*—
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Kuklin, Georgy Sergeevich: *See*—
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Andoniev, Dergei Mikhailovich; Alexandrov, Nikolai Nikitovich; Klochnev, Nikolai Ivanovich; Kovalevich, Evgeny Vladimirovich; Kudinov, Gennady Alexandrovich; Kutsykovich, Dorina Borisovna; Kulikov, Vasily Ivanovich; and Filipiev, Vladimirovich, 3,822,736.

Kummel, Fritz, to Delmag-Maschinenfabrik Reinhold Dornfeld. Fuel injection pump for a diesel assisted ram. 3,822,969, Cl. 417-437.000.

Kurschner, Hermann E., to Air Preheater Company, Inc., The. Multi-directional seal biasing means. 3,822,739, Cl. 165-9.000.

Kuster, Heinz; and Brorsson, Bjorn, to Aktiebolaget Rosenfors Bruk. Sley driving system with single or double contact for power looms or hand looms. 3,822,726, Cl. 139-190.000.

Kutsykovich, Dorina Borisovna: *See*—
Andoniev, Dergei Mikhailovich; Alexandrov, Nikolai Nikitovich; Klochnev, Nikolai Ivanovich; Kovalevich, Evgeny Vladimirovich; Kudinov, Gennady Alexandrovich; Kutsykovich, Dorina Borisovna; Kulikov, Vasily Ivanovich; and Filipiev, Vladimirovich, 3,822,736.

La Marche, Robert Ernest; and May, Carl Jerome, Jr., to Bell Telephone Laboratories, Incorporated. Common control digital echo suppressor. 3,823,275, Cl. 179-170.200.

La Mers, Herbert, to Jones, R. A. & Company, Inc. Label applicator head. 3,823,050, Cl. 156-493.000.

La Pointe, Joel P.: *See*—
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LaBarge, Inc.: *See*—
Brothers, Benton H.; Christianson, William O.; Hunter, Larry L.; Hunter, Max R.; Stauder, Bob E.; and Sitler, Donald D., 3,822,598.

Laby, Jordan M.: *See*—
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LaGase, Francis E.; and Jovanovitch, Stevan, to Cyprus Mines Corporation. Flame and radiation resistant cable. 3,823,255, Cl. 174-113.00r.

Lailach, Gunter; and Winter, Gerhard, to Farbenfabriken Bayer Aktiengesellschaft. Agglomeration of titanium ores containing iron. 3,823,009, Cl. 75-3.000.

Lake, Robert D.: *See*—
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Lalor, William F., to Cotton Incorporated, mesne. Subsoil amendment material incorporating method and apparatus. 3,822,656, Cl. 111-14.000.

Laman Joseph R.; and Kay, Edward Leo, to Firestone Tire & Rubber Company, The. Production of a char reinforcing agent from pyrolyzed scrap-rubber. 3,823,224, Cl. 423-449.000.

Lancer Boss Limited: *See*—
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Lancini, Giancarlo; Lazzari, Ettore; and Diena, Alberto, to Lepetit S.p.A. Antibiotic substances. 3,823,186, Cl. 260-534.00r.

Lancz, Albert Jay, to Colgate-Palmolive Company. Two part liquid car wash system. 3,823,094, Cl. 252-527.000.

Land, Edwin H., to Polaroid Corporation. Cassette changer for use with a photographic projector adapted to receive a multi-purpose film handling cassette. 3,822,934, Cl. 352-123.000.

Landen, William James, to Eyelet Specialty Company. Safety closure. 3,822,811, Cl. 222-562.000.

Langbein, Adolf: *See*—
Merz, Herbert; Langbein, Adolf; Wick, Helmut; and Stockhaus, Klaus, 3,823,150.

Lars-Jos, Pehr. Glove and method of making. 3,822,417, Cl. 2-169.000.

Larsen, Eric R.: *See*—
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Larson, Clifford L., to Korthe Engineering Corporation. Fluid operated web break detector assembly with switch actuator motion blocking means. 3,823,283, Cl. 200-61.180.

Larson, Sherman L., to Sherman Car Wash Equipment Co. Vehicle conveying means for vehicle washer. 3,822,430, Cl. 15-21.00r.

Laser Alignment Inc.: *See*—
Unema, Norman P., 3,823,313.

Lauton, Alain: *See*—
Wegmueller, Hans; Lauton, Alain; and Keller, Karl Heinz, 3,822,997.

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Lavorazione Materie Plastiche L.M.P. S.p.A.: *See*—
Colombo, Roberto, 3,823,211.

Lawrence, Grath D., to Dow Chemical Company, The. Flex composition for zinc base alloys. 3,823,013, Cl. 75-65.00r.

Lay, Michael T., to McGraw-Edison Company. Variable speed drill press. 3,822,961, Cl. 408-236.000.

Lazenby, Alan William, to Lucas, Joseph (Industries) Limited. Method of making a solenoid for use in an engine starting mechanism. 3,822,469, Cl. 29-596.000.

Lazzari, Ettore: *See*—
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Le Breton, Leslie Arthur. Pipe bending devices. 3,822,578, Cl. 72-389.000.

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Leader, Harold P. Grass catcher. 3,822,536, Cl. 56-202.000.

Lean, Eric G.: *See*—
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Ledoux Dodewaard, N. V., The: *See*—
Ledoux, Johan, 3,823,320.

Ledoux, Johan, to Ledoux Dodewaard, N. V., The. Electro-optic device for counting objects. 3,823,320, Cl. 250-272.0pc.

Lee, Charles A.: *See*—
Ward, George T.; Means, John A.; Lee, Charles A.; and Furbeck, Warren R., 3,823,062.

Lee, Raymond, Organization,: *See*—
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Lee, Raymond, Organization, Inc., The: *See*—
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Lehti, Taisto A.: *See*—
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Leitz, Ernst, GmbH: *See*—
Hock, Fromund, 3,822,942.

Leonard, Olive Gene; and Stone, Eliot, to National Cash Register Company, The. Method of forming a high density planar core memory. 3,823,033, Cl. 117-212.000.

Leonard, Verna M. Music teaching aid based on the hands and scale degrees. 3,822,630, Cl. 84-471.000.

Leonov, Vyacheslav Stepanovich: *See*—
Yakobson, Yakov Savelievich; Sysin, Alexandr Yakovievich; Leonov, Vyacheslav Stepanovich; Ignatovich, Vladimir Alexeevich; Popov-Iliin, Boris Petrovich; Skachkov, Alexandr Nikolaevich; Skudina, Natalia Alexandrovna; Forichev, Sergei Gavrilovich; Degtyarev,Gavriil Artemovich; Bir, Mirev Leizerovich; Kovanov, Nikolai Ivanovich; Melnikov, Jury Sergeevich; and Voskoboinikova, Lidia Mikhailovna, 3,822,418.

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Krupin, Alexandr Vasilievich; Roschin, Valentin Fedorovich; Alekhin, Leonid Petrovich; Izotov, Valery Mikhailovich; Burov, Oleg Alexandrovich; Gavrilov, Viktor Mikhailovich; Chekanov, Alexandr Ermolaevich; Lepin, Viktor Petrovich; and Vinogradov, Fedor Terntievich, 3,822,574.

Lesser, Joseph H., to Esso Research and Engineering Company. Aminothiophene derivatives. 3,823,161, Cl. 260-332.20c.

Leszczynski, Stanley. Apparatus for transporting transformers and the like. 3,822,800, Cl. 214-370.000.

Leuteritz, Gunther Max. Process for the continuous and selective catalytic partial hydrogenation of unsaturated fats and oils. 3,823,172, Cl. 260-409.000.

Levengood, William C., to Sensors Incorporated. Method and apparatus for inducing morphogenetic alterations in plants. 3,822,505, Cl. 47-1.300.

Leveridge, Athos D.: *See*—
Leveridge, Athos D., 3,822,476.

Leveridge, Athos D., to Leveridge, Athos D. and Leveridge, Therese d/b/a Leveridge, A. D. Finger and ring measuring gauge. 3,822,476, Cl. 33-143.00c.

Leveridge, Therese d/b/a Leveridge, A. D.: *See*—
Leveridge, Athos D., 3,822,476.

Levis, William W., Jr.: *See*—
Pizzini, Louis C.; Ramlow, Gerhard G.; Patton, John T.; and Levis, William W., Jr., 3,823,201.

Levis, William W., Jr.; and Pizzini, Louis C., to BASF Wyandotte Corporation. Ester-containing amine-based liquid polyols and use in preparation of urethane compositions. 3,823,176, Cl. 260-468.00j.

Lewis, John M., to Ekstrom, Carlson & Co. Multispindle drilling machine. 3,822,958, Cl. 408-46.000.

Li, Chou H. Precision, fluid flow metering device. 3,822,591, Cl. 73-194.00m.

Licentia Patent-Verwaltungs-G.m.b.H.: *See*—
Maslowski, Stefan; Borner, Manfred; Huber, Hans-Peter; and Loffler, Werner, 3,823,276.

Lincoln Brass Works: *See*—
Du Perow, Donald E., 3,822,982.

Lincoln, Frank H., Jr.; and Pike, John E., to Upjohn Company, The. 5,6-Trans $PGF_2\alpha$ and . 3,823,180, Cl. 260-468.00d.

Lindblad, Oskar. Safety belt arrangement for individuals. 3,822,760, Cl. 180-82.00c.

Lindelow, Bjorn T. Device for rotatable support of rolls comprising a web of cloth or similar. 3,822,733, Cl. 160-120.000.

Lindsey, L. E.; and Sammons, Herbert F. Lindsey Manufacturing Company Conventional conductor stringing assembly for power line use. 3,822,862, Cl. 254-196.000.

Lippitsch, Josef, to Waagner-Biro Aktiengesellschaft. Tubular heat exchanger with stress-relieving structure. 3,822,741, Cl. 165-83.000.

Lippke Paul, deceased 5 Device for measuring physical properties of a moving web. . 3,823,371, Cl. 162-263.000.

Liquid Level Lectronics, Inc.: *See*—
Johnson, J. Wallace, 3,822,933.

Liska, John W.; and Beckman, Joseph A., to Firestone Tire & Rubber Company, The. Rubber reinforcing agent. 3,823,223, Cl. 423-445.000.

Little, Arthur D., Inc.: *See*—
Heitman, Richard E.; and Norris, Richard C., 3,823,389.
Norris, Richard C., 3,823,393.

Littleton, F. John, to World Color Press, Inc. Web folder protection apparatus and method. 3,822,877, Cl. 270-56.000.

Livingstone, Seabourn S.; and Hillman, Herbert H., to St. Clair Rubber Company. Bumper strip. 3,822,909, Cl. 293-71.00r.

Lloyd, Norman E.: *See—*
Hurst, Louis S., 3,823,133.

Lobbestael, Sandra J.: *See—*
De Wald, Horace A., 3,823,157.

Lobeck, Walter G.: *See—*
Wu, Yao Hua; and Lobeck, Walter G., 3,823,136.

Lock, Everett H.: *See—*
Maurer, William C.; Heilhecker, Joe K.; and Lock, Everett H., 3,822,902.

Lode, Tenny D., to Electronic Processors, Inc. Digital to analog converter incorporating multiple time division switching circuits. 3,823,396, Cl. 340-347.0da.

Loew, Frederic Christian; and Stone, Edward, to Inmont Corporation. Polyurethanes. 3,823,111, Cl. 260-32.6nr.

Loffler, Werner: *See—*
Maslowski, Stefan; Borner, Manfred; Huber, Hans-Peter; and Loffler, Werner, 3,823,276.

Lofquist, Robert Alden; and Saunders, Peter Reginald, to Allied Chemical Corporation. Water-soluble thioureas to inhibit ozone fading of dyed polyamides. 3,822,996, Cl. 8-165.000.

Loomer, Weston R.: *See—*
Salsburg, Frederic S.; and Loomer, Weston R., 3,822,795.

Lopez Sanchez, Demetrio, to Pilas Secas Jupiter, S.A. Sealing closure for electric batteries. 3,823,039, Cl. 136-133.000.

Loren, Jan, to Soderberg Tollman AB. Litter for tending bed-ridden patients. 3,822,421, Cl. 4-173.000.

Lorenz, Walter; Eue, Ludwig; and Hack, Helmuth, to Farbenfabriken Bayer Aktiengesellschaft. Method for selective weed control in beets. 3,823,006, Cl. 71-94.000.

Loseke, Melvin R.: *See—*
Heithecker, Gary; Loseke, Melvin R.; and Ferguson, Joe, 3,823,251.

Louvar, Joseph F.; and Nichols, Newlin S., to BASF Wyandotte Corporation. Removal of impurities from polyols. 3,823,145, Cl. 260-268.0pl.

Lovisa, Peter R.; and Tausanovitch, Dusan. Reusable tie assembly for concrete forms. 3,822,860, Cl. 249-217.000.

Lowi, Alvin, Jr. Portable utility system. 3,822,566, Cl. 62-435.000.

Lowry, James, to Westinghouse Electric Corporation. Elevator system. 3,822,767, Cl. 187-52.000.

Lucas Electrical Company Limited, The: *See—*
Germany, Michael John, 3,823,314.
Hill, William Frank, 3,823,363.

Lucas, Joseph, (Electrical) Limited: *See—*
Clarke, Donald Bernard, 3,822,821.

Lucas, Joseph (Industries) Limited: *See—*
Lazenby, Alan William, 3,822,469.
Salway, Peter Hugh, 3,822,684.

Lucas, Richard V. Modular wall panel section and bolted wall construction. 3,822,521, Cl. 52-593.000.

Ludwig, Allen C.: *See—*
Dale, John M.; and Ludwig, Allen C., 3,823,019.

Ludwig, Martin; and Senger, Hanns Joerg, to Siemens Aktiengesellschaft. Code-controlled teleprinter having a type cylinder which can be adjusted by means of a stepping motor. 3,823,265, Cl. 178-34.000.

Lumen, Karl Lennart Gosta: *See—*
Johansson, Ernst Lennar; and Lumen, Karl Lennart Gosta, 3,822,952.

Lumsden, Norman: *See—*
Crook, Alan; and Lumsden, Norman, 3,823,329.

Lust, David A. Modular storage unit and structures formed therefrom. 3,822,924, Cl. 312-111.000.

Lutzmann, H. Harald: *See—*
Frayer, Paul D.; and Lutzmann, H. Harald, 3,823,061.

Lyczkowski, Robert W.: *See—*
Gidaspow, Dimitri; Lyczkowski, Robert W.; and Baker, Bernard S., 3,823,038.

Maag, Heinz, to Gegauf, Fritz, Aktiengesellschaft Bernina-Nahmaschinenfabrik. Portable sewing machine and case. 3,822,659, Cl. 112-258.000.

Macander, Rudolph F.: *See—*
Brindell, Gordon D.; and Macander, Rudolph F., 3,823,115.

MacDonald, John Angus; and Wyeth, Harold William Gerald, to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Closeable containers having means for suppressing fire and/orexplosions. 3,822,807, Cl. 220-88.00r.

Mackenhus Corporation: *See—*
McNeely, Arthur O.; Kennedy, Wiley T.; and Huska, Paul, 3,822,903.

Maerz Ofenbau AG: *See—*
Tschinkel, Friedrich, 3,822,989.

Magnetic Analysis Corporation: *See—*
Mansson, Sven E.; Brooks, Robert A.; and Bebick, Paul J., 3,823,368.

Maguire, James Q., Jr. Method of fracturing and repressuring subsurface geological formations employing liquified gas. 3,822,747, Cl. 166-259.000.

Mahieu, Marc: *See—*
Andre, Elie; and Mahieu, Marc, 3,823,043.

Mahler, Hans Hermann: *See—*
Arian, Charles Mourad; Mahler, Hans Hermann; Hayes, Claude Cecil, Jr.; and Tanner, Hal W., Jr., 3,823,028.

Mahoney, Edwin L. Shaving brush having heating means for leather. 3,822,434, Cl. 15-160.000.

Majer, Horst-Rudiger: *See—*
Appel, Hermann; Majer, Horst-Rudiger; and Oehlerking, Conrad, 3,822,907.

Makarov, Nikolai Alexandrovich; Maximov, Mikhail Grigorievich; and Khokhlov, Anatoly Matveevich. Pulsating fluid pumping system. 3,822,968, Cl. 417-394.000.

Makino, Takayuki; and Toriyama, Haruhiko, to Toyota Jidosha Kogyo Kabushiki Kaisha. Axial force measuring method utilizing ultrasonic wave. 3,822,587, Cl. 73-67.200.

Malco Products, Inc.: *See—*
Keymer, Mark W., 3,822,731.

Maley, William B., to Techlite, Inc. Display apparatus. 3,822,493, Cl. 40-31.000.

Maley, William B., to Techlite, Inc. Display apparatus. 3,922,493, Cl. 40-31.000.

Mallinckrodt Chemical Works: *See—*
Reimlinger, Hans Karl; Shanahan, Robert W.; and Vandewalle, Jan Joseph Maurice, 3,823,238.

Mallinger, John. Audible speedometer. 3,823,383, Cl. 340-62.000.

Mallory, P. R., & Co., Inc.: *See—*
Kaye, Gordon E.; and Sussingham, George, 3,823,367.

Malmstrom, Sven-Erik, to Swedish Hospital Supply SHS AB. Disposable lancet. 3,822,461, Cl. 29-415.000.

Maloof, Robert E., to General Electric Company. Caps and connectors with positioning cam and method of forming. 3,823,381, Cl. 339-196.00m.

Manchester, William E.; and Hugill, Douglas B., to Northrop Corporation. Ceramic die press system. 3,823,303, Cl. 219-153.000.

Mansson, Sven E.; Brooks, Robert A.; and Bebick, Paul J., to Magnetic Analysis Corporation. Calibration and balance system in pulse eddy current testing apparatus. 3,823,368, Cl. 324-40.000.

Mansur, Raymond T.: *See—*
Schulz, Gerald L.; and Mansur, Raymond T., 3,823,055.

Mantovani, Dante. Sheet folding machine with two magazines. 3,822,878, Cl. 270-68.00a.

Marathon Oil Company: *See—*
Gogarty, William B., 3,822,746.
Vestal, Charles R.; and Zimmerman, Carle C., 3,823,119.

Marcdargent, Serge: *See—*
De Pradenne, Henri Vayson; and Marcdargent, Serge, 3,823,200.

Marchant, Paul A., to Ethyl Development Corporation. Safety closure for containers. 3,822,805, Cl. 215-9.000.

Marcum, Alfred L., Jr., to Price Brothers Company. Apparatus for straight line oscillation of a wire guide. 3,822,831, Cl. 242-7.210.

Maremont Corporation: *See—*
Tharpe, James B.; Aurich, Christoph W.; and Wallace, Joseph B., 3,822,590.

Marriner, John E. Flexible connection for articulating vessels. 3,822,667, Cl. 114-235.00r.

Marschall, Karl. Apparatus for treating and purifying sewage, particularly sewage contaminated with detergents. 3,822,786, Cl. 210-108.000.

Martin, Richard E.; Gildone, Anthony M.; and Frankfurt, Sandor, to GMF Inc. Beverage tapping device. 3,822,716, Cl. 137-212.000.

Martin, Virgil B., to Gehl Company. Front mounted harvester. 3,822,534, Cl. 56-13.900.

Martin, William E. Multiple implement coupling structure. 3,822,756, Cl. 180-14.00r.

Marx, Herman: *See—*
Siegel, William A.; Aafjes, Herman C., Jr.; and Marx, Herman, 3,822,592.

Maschinenfabrik Andritz Aktiengesellschaft: *See—*
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Maschinenfabrik Gehring KG: *See—*
Bender, Albert, 3,822,508.

Maschinenfabrik Stromag G.m.b.H.: *See—*
Bohm, Heinz-Dieter; Ruggen, Werner; Krellmann, Herbert; and Schluckebier, Wilhelm, 3,822,568.

Mase, Toshiyasu: *See—*
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Mashimo, Yukio: *See—*
Hasegawa, Goro; Aoyagi, Masao; and Mashimo, Yukio, 3,823,411.

Maslowski, Stefan; Borner, Manfred; Huber, Hans-Peter; and Loffler, Werner, to Licentia Patent-Verwaltungs-G.m.b.H. Recording/reproducing radiation system with the record medium wrapped and guided helically inside a hollow cylinder. 3,823,276, Cl. 179-100.0b.

Mason, Mark T., to New Hampshire Ball Bearings Inc. Apparatus for establishing a visible plane or fan of light. 3,822,943, Cl. 356-138.000.

Matsubara, Masaki, to Olympus Optical Co., Ltd. Microscope objective. 3,822,931, Cl. 350-215.000.

Matsumoto, Kiyoshi: *See—*
Miyaki, Takeo; and Matsumoto, Kiyoshi, 3,823,069.

Matsunaga, Yoshiki; Hoshino, Yoichi; and Kobayashi, Yoshimichi, to Mitsubishi Chemical Industries, Ltd. Process for preparing thermosettable urethane resin. 3,823,118, Cl. 260-77.5aq.

Matsushita Electric Industrial Co., Ltd.: *See—*

Kitamura, Tsutomu, 3,823,385.
Nakagawa, Takamichi, 3,822,889.

Matsushita Electric Industrial Company, Limited: *See—*
Amagami, Keizo; Mori, Hazime; Kobayashi, Takao; Kiuchi, Mitsuyuki; and Ogino, Yoshio, 3,823,296.

Matsushita Electronics Corporation: *See—*
Nakamura, Hiroto; Doi, Ken-Ichi; Sato, Akira; and Suzuki, Yushin, 3,823,336.

Matthews, Jamie F., Jr.; and Pattison, Martin O., to Esso Production Research Company. Controlled yield stinger. 3,822,559, Cl. 61-72.300.

Matz, Bjorn J., to Dictaphone Corporation. Farthest advance circuit for a remote station dictating system. 3,823,274, Cl. 179-100.1dr.

Matzek, Norman E.: *See—*
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Mauceri, Frank A.: *See—*
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Maurer, William C.; Heilhecker, Joe K.; and Lock, Everett H., to Esso Production Research Company. Connection for pipe joints. 3,822,902, Cl. 285-94.000.

Mauvernay, Roland Yves, to Centre Europeen de Recherches Mauvernay C.E.R.M. Monohydrated papaverine adenosine-5'-monophosphate medicament for treatment of cardiovascular disorders. 3,823,234, Cl. 424-180.000.

Maxey, Edwin Morgan: *See—*
Fabris, Hubert Jakob; and Maxey, Edwin Morgan, 3,823,096.

Maximov, Mikhail Grigorievich: *See—*
Makarov, Nikolai Alexandrovich; Maximov, Mikhail Grigorievich; and Khokhlov, Anatoly Matveevich, 3,822,968.

May & Baker Limited: *See—*
Carpenter, Keith; Heywood, Basil Jason; Parnell, Edgar William; Metivier, Jean; and Boesch, Roger, 3,823,008.

May, Carl Jerome, Jr.: *See—*
La Marche, Robert Ernest; and May, Carl Jerome, Jr., 3,823,275.

Mayer, Armin: *See—*
Bolling, Fritz; Mayer, Armin; Parikh, Mavendra; and Toussaint, Friedrich, 3,823,042.

Mayer, Heinz: *See—*
Oelmayer, Reinhold; Seelos, Albert; Seitz, Helmut; Mayer, Heinz; Duell, Joseph; Hertl, Wilhelm; and Hoch, Hans-Jorg, 3,823,257.

Mayne, David L. Hockey puck shooting machine. 3,822,688, Cl. 124-6.000.

Maytag Company, The: *See—*
Cotton, Curran K., 3,822,482.

Mazza, Lamberto, to Industrie A Zanussi S.p.A. Method and apparatus for transferring commands in closed loop television installations. 3,823,259, Cl. 178-5.600.

McAuley, James H., to McAuley Manufacturing, Inc. Flexible material conveying chain of interlocking identical wire links. 3,822,779, Cl. 198-168.000.

McAuley Manufacturing, Inc.: *See—*
McAuley, James H., 3,822,779.

McClellan, Ronald E., to Ultronic Systems Corporation. Information storage and retrieval system. 3,823,387, Cl. 340-172.500.

McClocklin, Samuel B., to Owatonna Tool Company. Hydraulic pump. 3,822,966, Cl. 417-311.000.

McClung, Charles E.; and Glasgow, David G., to Monsanto Company. Polyurethane interlayer for laminated safety glass. 3,823,060, Cl. 161-190.000.

McConnell, Lorne D.; and Aumayer, Hansruedi, to I-T-E Imperial Corporation. Interrupter structure for circuit breaker with individual blast valves and time-delayed upstream cutoff valve. 3,823,289, Cl. 200-148.00b.

McCormick, Harold E.: *See—*
Prasse, Harold F.; and McCormick, Harold E., 3,822,973.

McDonnell Douglas Corporation: *See—*
Crispin, Thayer S.; and Duskin, Fred E., 3,822,762.
Phillips, Austin, 3,823,075.

McGraw-Edison Company: *See—*
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McIntosh Laboratory, Inc.: *See—*
Modafferi, Richard, 3,823,268.

McKay, Robert S.: *See—*
Terzian, Reuben; McKay, Robert S.; and Glass, Marvin I., 3,822,880.

McKenzie, Roland W.; and Stansberry, Richard, to City Tank Corporation. Control valve operating mechanism. 3,822,797, Cl. 214-83.300.

McNeely, Arthur O.; Kennedy, Wiley T.; and Huska, Paul, to Mackenhus Corporation. Multi-core underground conduit-manhole system. 3,822,903, Cl. 285-147.00r.

Mead Johnson & Company: *See—*
Wu, Yao Hua; and Lobeck, Walter G., 3,823,136.

Means, John A.: *See—*
Ward, George T.; Means, John A.; Lee, Charles A.; and Furbeck, Warren R., 3,823,062.

Medi-Spec Corporation: *See—*
Simone, Pasquale; and Schneider, Julius S., 3,822,706.

Medovar, Boris Izrailevich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich, 3,823,242.

Mehltretter, Charles L.: *See—*
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Meisel, Franz: *See—*
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Melnikov, Jury Sergeevich: *See—*
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Menhennett, Herbert E.: *See—*
Howard, Robert; Robinson, Prentice I.; and Menhennett, Herbert E., 3,823,397.

Mercadante, Joseph: *See—*
Gouirand, Rene, 3,822,908.

Mercer, Norman Joseph, Jr., to Esterline Corporation. Automatic surface grinder. 3,822,512, Cl. 51-165.810.

Merger, Franz; and Petersen, Harro, to Basf Aktiengesellschaft. Production of 2,4-hexahydropyrimidinodiones. 3,823,143, Cl. 260-260.000.

Merit Metal Products Corporation: *See—*
Mueller, Hellmuth F. A., 3,822,468.

Merkin, Eugene, to Union Environmental Corporation. Full level indicator for refuse compactor. 3,822,638, Cl. 100-52.000.

Merlin Gerin: *See—*
Pelenc, Yves; and Bernard, Georges, 3,823,341.

Merz, Herbert; Langbein, Adolf; Wick, Helmut; and Stockhaus, Klaus. 2-(Furyl-methyl)-6,7-benzomorphans and acid addition salts thereof. 3,823,150, Cl. 260-293.540.

Mesco Metal Buildings Corporation: *See—*
Heithecker, Gary; Loseke, Melvin R.; and Ferguson, Joe, 3,823,251.

Messer, Thomas V. Back rest. 3,822,424, Cl. 5-344.000.

Messmer, Hubert; Monnerjahn, Walter; and Rudolph, Werner. Warning blinker. 3,823,384, Cl. 340-84.000.

Mestetsky, Thomas S., to GAF Corporation. Article comprising an adhesive coating and controlled release coating. 3,823,025, Cl. 117-68.500.

Metcalfe, Arthur G.; and Rose, Fred K., to International Harvester Company. Metallurgical bonding and forming processes and apparatus. 3,823,299, Cl. 219-83.000.

Metivier, Jean: *See—*
Carpenter, Keith; Heywood, Basil Jason; Parnell, Edgar William; Metivier, Jean; and Boesch, Roger, 3,823,008.

Meyers, Calvin E., to Bug-Lok Corporation. Apparatus for locking gear shift stick and handbrake lever of a motor vehicle. 3,822,573, Cl. 70-200.000.

Meynadier & Cie Aktiengesellschaft: *See—*
Brunar, Gerhart, 3,823,026.

Miculka, Zdenek: *See—*
Janirek, Vladislav; Miculka, Zdenek; and Duba, Jan, 3,822,572.

Middlebrook, Terence C., to Phillips Petroleum Company. Polymer compositions. 3,823,109, Cl. 260-23.70r.

Midkiff, Cecil L. Fuel feeding method and apparatus. 3,822,657, Cl. 110-101.0cd.

Midland Industries, Incorporated: *See—*
Williams, Henry L., 3,823,407.

Mikami, Yoichiro: *See—*
Minato, Sachio; Mikami, Yoichiro; and Hayashi, Kazuo, 3,823,070.

Mikan, Donald G.; and Presti, Achille A., to Pitney-Bowes, Inc. Dampening control circuit for off-set printing apparatus. 3,822,643, Cl. 101-148.000.

Milcoy, Edger Albert Philip. Electric switch for portable electric appliances. 3,823,291, Cl. 200-157.000.

Miller, Allan Sinclair, to Denco Miller Limited. Self contained air cooling unit. 3,822,561, Cl. 62-157.000.

Miller, Kenneth E.: *See—*
Wismer, Marco; Pohan, Charles; Miller, Kenneth E.; and Hansen, Charles M., 3,823,027.

Mills, Gordon E., to Jankelson, Bernard. Method of monitoring mandibular positions and movements. 3,822,694, Cl. 128-2.00s.

Miltenberger, Robert S.; and Wilcher, David W., to National Steel Corporation. Process for casting molten silicon-aluminum killed steel continuously. 3,822,735, Cl. 164-56.000.

Minato, Sachio; Mikami, Yoichiro; and Hayashi, Kazuo, to Hasegawa, T. Company, Ltd. Process for producing a straight chain dicarboxylic acid, an omega-hydroxy fatty acid, and an omega-l-keto fatty acid. 3,823,070, Cl. 195-28.00r.

Minbiole, Louis J.; Clark, Chester G.; and Neumann, John W., to Oxy Metal Finishing Corporation, mesne. Apparatus for electroplating workpieces. 3,823,083, Cl. 204-275.000.

Minbiole, Louis J., Jr.; Clark, Chester G.; and Neumann, John W., to Oxy Metal Finishing Corporation, mesne. Method for electroplating workpieces. 3,823,074, Cl. 204-23.000.

Minder, Delwin V. Display plate for openers of pre-scored cans. 3,822,496, Cl. 40-307.000.

Mineda, Hisahal: *See—*
Murase, Genyo; Mineda, Hisahal; and Yamaguchi, Yozo, 3,822,608.

Minix, William A., to Freeland Gauge Company. Air flow gaging device. 3,822,584, Cl. 73-37.900.

Minkkinen, Ari A. Calcining coke in vertical kiln. 3,823,073, Cl. 201-25.000.

Minnesota Mining and Manufacturing Company: *See—*
Endres, Leland S.; Gehlhoff, Leo F.; and Zimmerman, Dallas D., 3,823,230.
Kirby, Russell B., Jr.; and Wing, Stephen C., 3,823,002.

Misevich, Kenneth W.: *See—*
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Misik, Michael F., Jr.: *See—*
Obermann, George; Enger, Michael H.; and Misik, Michael F., Jr., 3,823,280.

Mistarz, Richard, to Sealy, Incorporated. Mattress topper pad and border stabilizer. 3,822,426, Cl. 5-354.000.

Mitra, Niranjan Kumar: *See—*
Van Stratum, Antonius Johannes Alberta; Mitra, Niranjan Kumar; and Zalm, Pieter, 3,823,337.

Mitsubishi Chemical Industries, Ltd.: *See—*
Matsunaga, Yoshiki; Hoshino, Yoichi; and Kobayashi, Yoshimichi, 3,823,118.

Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
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Mitsubishi Petrochemical Company Limited: *See—*
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Mitsubishi Rayon Co., Ltd.: *See—*
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Mitsubishi Rayon Company, Ltd.: *See—*
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Mitts, Richard K.; Jackson, Wilbur F.; and Willson, James R. Electric igniter construction. 3,823,345, Cl. 317-98.000.

Miyaki, Takeo; and Matsumoto, Kiyoshi, to Bristol-Myers Company. Preparation of L(-)-γ-amino-α-hydroxybutyric acid. 3,823,069, Cl. 195-2.000.

Miyamoto, Horoshi: *See—*
Morita, Katsuo; Hashimoto, Sadao; and Miyamoto, Horoshi, 3,822,662.

Mizutani, Seiki: *See—*
Kawakami, Tsuneta; Mizutani, Seiki; and Kaneda, Yasuyoshi, 3,822,640.

Mobil Oil Corporation: *See—*
Johnson, George C., 3,823,000.

Modafferi, Richard, to McIntosh Laboratory, Inc. Dynamic stereo separation control. 3,823,268, Cl. 179-15.0bt.

Molecular Design Incorporated: *See—*
Frayer, Paul D.; and Lutzmann, H. Harald, 3,823,061.

Molins Limited: *See—*
Armour, Richard Rodney; and Evans, Anthony James Thomas, 3,822,790.

Monarch Tool & Manufacturing Company: *See—*
Hall, Mitchell Adam, 3,822,775.

Monnerjahn, Walter: *See—*
Messmer, Hubert; Monnerjahn, Walter; and Rudolph, Werner, 3,823,384.

Monpetit, Louis: *See—*
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Monsanto Company: *See—*
McClung, Charles E.; and Glasgow, David G., 3,823,060.
Reisman, Abraham J., 3,823,113.
Smith, Lowell R., 3,823,195.
Stephens, John A., 3,823,007.

Montabert, Roger. Rock drill. 3,822,752, Cl. 173-106.000.

Montecatini Edison S.p.A.: *See—*
Ratti, Lorenzo; and Visani, Francesco, 3,823,116.

Moonan, Edward R. Ice cream scoop. 3,822,976, Cl. 425-286.000.

Moor, Alan B.: *See—*
Keane, Patrick J.; Moor, Alan B.; and Routley, Michael J., 3,823,377.

Morat, Franz, GmbH, Firma: *See—*
Oelmayer, Reinhold; Seelos, Albert; Seitz, Helmut; Mayer, Heinz; Duell, Joseph; Hertl, Wilhelm; and Hoch, Hans-Jorg, 3,823,257.

Moreno, Miguel Fernandez, to International Standard Electric Corporation. Trunking arrangement for multiple exchange switching system. 3,823,270, Cl. 179-18.0ea.

Morgan, William A., Jr. Vehicle rack. 3,822,801, Cl. 214-450.000.

Mori, Hazime: *See—*
Amagami, Keizo; Mori, Hazime; Kobayashi, Takao; Kiuchi, Mitsuyuki; and Ogino, Yoshio, 3,823,296.

Morikawa, Hiroyuki, to Mitsubishi Petrochemical Company Limited. Production of cyclic trimers of 1,3-dienes. 3,823,196, Cl. 260-666.00b.

Morimoto, Akiro; Takasugi, Hisashi; Nakai, Yoshiharu; and Watababe, Takao, to Fujisawa Pharmaceutical Co., Ltd. 3-Substituted-2-piperidinethiones and homologues thereof. 3,823,152, Cl. 260-293.690.

Morisaki, Toshikazu; and Tachimoto, Kazuo. Apparatus for continuous processing of sulfide ores and apparatus therefor. 3,822,871, Cl. 266-11.000.

Morita, Katsuo; Hashimoto, Sadao; and Miyamoto, Horoshi, to Bridgestone Tire Company Limited and Hakodate Geimo Sengu Kabushiki Kaisha. Safety device for ship. 3,822,662, Cl. 114-123.000.

Morita, Toshimitsu; and Kawachi, Jyousuke, 1/2 to U.S. Industries, Inc. and Hitachi Shipbuilding and Engineering Co., Ltd. Slide driving linkage for metal forming press. 3,822,603, Cl. 74-38.000.

Morival, Genevieve; and Hebert, Remy, to Societe Anonyme dite: Aquitaine Total Organico Tour Aquitaine. Process for the polymerization of dodecalactame in the presence of boric acid. 3,823,105, Cl. 260-18.00n.

Morrien, Albertus Marinus: *See—*
van Elk, Cornelis Johannes; and Morrien, Albertus Marinus, 3,823,266.

Morris, Wesley F. Model airplane timing mechanism. 3,822,503, Cl. 46-244.00b.

Morrison-Knudson Company, Inc.: *See—*
Fearon, Joseph G., 3,822,650.

Morse Boulger, Inc: *See—*
Zanft, Auram B., 3,822,987.

Mortensen, Louis Aackersberg. Display holder or sales unit. 3,822,783, Cl. 206-223.000.

Mosharrafa, Mostafa A., to Automated Medical Systems, Inc. Automatic gain mathod and controller for mass spectrometer. 3,823,315, Cl. 250-283.000.

Moss, Theron V. Disposable dust mop and method of making same. 3,822,435, Cl. 15-229.0bp.

Moss, Theron V. Buffing or scribbing pad with outer abrasive ring. 3,822,517, Cl. 71-394.000.

Mott, James D., to Hydril Company. Method of killing a well using a completion and kill valve. 3,822,745, Cl. 166-244.00r.

Muehlberger, Erich, to Geotel, Inc. Apparatus and method for plasma spraying. 3,823,302, Cl. 219-121.00p.

Mueller, Hellmuth F. A., to Merit Metal Products Corporation. Tool for removal of deterrent spring clip. 3,822,468, Cl. 29-268.000.

Mulcihy, Thomas W., to Dow Chemical Company, The. Preparation of metals. 3,823,003, Cl. 75-10.00v.

Mull, John R.: *See—*
Wallin, Robert A.; Mull, John R.; and Smith, Don W., 3,822,439.

Muller, Reinhold; and Randelzhofer, Konrad, to Petri Aktiengesellschaft. Steering wheel with built-in air cushion. 3,822,894, Cl. 280-150.0ab.

Munk, Benedikt Aa.: *See—*
Walter, Carlton H.; Munk, Benedikt Aa.; and Thiele, Gary A., 3,823,403.

Munson, Robert Thomas: *See—*
Hodgson, Philip; Munson, Robert Thomas; and Reed, Gordon Howard, 3,823,414.

Murakami, Kiyoharu, to Kabushiki Kaisha Daikin Seisakusho. Clutch disc releasing spring with automatic wear compensator. 3,822,772, Cl. 192-111.00a.

Murakami, Masuo; Takahashi, Kozo; Hirata, Yasubumi; Kubo, Kazuo; Mase, Toshiyasu; Yanagisawa, Isao; and Takeda, Masaaki, to Yamanouchi Pharmaceutical Co., Ltd. Novel 1-benzoyloxy-2-lower alkylaminobenzo-cycloalkane derivatives. 3,823,181, Cl. 260-477.000.

Murase, Genyo; Mineda, Hisahal; and Yamaguchi, Yozo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Energy absorbing steering assembly. 3,822,608, Cl. 74-493.000.

Murata, Masae: *See—*
Kondo, Tatsuo; and Murata, Masae, 3,822,888.

Murata, Taneo, to Alps Electric Co., Ltd. Push-button switch with conductive coil spring contact. 3,823,292, Cl. 200-159.00r.

Murawski, Steve A. Hollow member for shoes. 3,822,490, Cl. 36-2.50r.

Murgatroyd, Paul John: *See—*
Douglass, Walter; and Murgatroyd, Paul John, 3,822,881.

Musinski, Arthur L.: *See—*
Brower, Frank M.; Phillips, Barbara H.; Matzek, Norman E.; and Musinski, Arthur L., 3,823,226.

Mutchler, Paul A., to American Air Filter Company, Inc. Gas-fired furnace. 3,822,691, Cl. 126-110.00r.

Mutchler, Paul A., to American Air Filter Company, Inc. Gas-fired furnace. 3,822,991, Cl. 432-223.000.

Muto Industrial Company Ltd.: *See—*
Yada, Tatsuo; Komabayashi, Yoshibumi; and Watanabe, Yoshinori, 3,822,474.

Nagahama, Yasuo, to Nippon Gakki Seizo Kabushiki Kaisha. Audio signal keyer. 3,823,244, Cl. 84-1.010.

Naito, Takayuki; and Okumura, Jun, to Bristol-Myers Company. 7-(α-Aminomethyl-p-hydroxy-phenylacetamido) -3-(3-hydroxy-pyridazin-6-ylthimethyl)-3-cephem-4- carboxylic acid. 3,823,141, Cl. 260-243.00c.

Naito, Takayuki; and Nakagawa, Susumu, to Bristol-Myers Company. Production of L(-)γ-amino-α-hydroxybutyric acid. 3,823,187, Cl. 260-534.00m.

Nakagawa, Susumu: *See—*
Naito, Takayuki; and Nakagawa, Susumu, 3,823,187.

Nakagawa, Takamichi, to Matsushita Electric Industrial Co., Ltd. Automatic record player. 3,822,889, Cl. 274-10.00r.

Nakai, Yoshiharu: *See—*
Morimoto, Akiro; Takasugi, Hisashi; Nakai, Yoshiharu; and Watababe, Takao, 3,823,152.

Nakamura, Hiroto; Doi, Ken-Ichi; Sato, Akira; and Suzuki, Yushin, to Matsushita Electronics Corporation. Shadow mask support structure including a plurality of bimetallic elements for each leaf spring. 3,823,336, Cl. 313-405.000.

Nakamura, Ituo: *See—*
Edagawa, Hiroshi; Nakamura, Ituo; and Susami, Kozo, 3,822,543.

Nalco Chemical Company: *See—*
Epple, Donald G., 3,823,110.
Schuh, Theodore R.; and Mauceri, Frank A., 3,823,122.

Naniwa Sangyo Kabushikigaisha: *See—*

Nijo, Kiyoichi, 3,822,564.
Nasco Plastics, Incorporated: *See*—
Cloyd, Harold S., 3,822,701.
National Cash Register Company, The: *See*—
Koeller, Charles W.; and Chan, Stephen J. C., 3,823,359.
Leonard, Olive Gene; and Stone, Eliot, 3,823,033.
National Components Industries, Inc.: *See*—
Karlik, Steven, Jr., 3,823,347.
National Steel Corporation: *See*—
Miltenberger, Robert S.; and Wilcher, David W., 3,822,735.
Nederlanse Organsatie voor Toegepast-Natuurweten Schappelisk Ondergoek Ten Behoeve Van Nijverheid: *See*—
De Boer, Jan J.; and Borsten, Herman, 3,822,994.
Nederman, Bill. Apparatus for removing gases. 3,822,719, Cl. 137-355.260.
Neeff, Rutger: *See*—
Peters, Karl-Heinz; and Neeff, Rutger, 3,823,167.
Neff, Wayne W. Trailer for motorcycles. 3,822,798, Cl. 214-85.000.
Nell, Donald C. F. Apparatus for collecting and extracting furnace fumes. 3,822,872, Cl. 266-19.000.
Neumann, John W.: *See*—
Minbiole, Louis J.; Clark, Chester G.; and Neumann, John W., 3,823,083.
Minbiole, Louis J., Jr.; Clark, Chester G.; and Neumann, John W., 3,823,074.
New Hampshire Ball Bearings Inc.: *See*—
Mason, Mark T., 3,822,943.
NGZ Geldzahlmaschinen-ges. mbH. & Co.: *See*—
Frahm, Gerd Rainer; Meisel, Franz; and Heinl, Ulrich, 3,822,713.
Nichols, Newlin S.: *See*—
Louvar, Joseph F.; and Nichols, Newlin S., 3,823,145.
Nichols, William R. Portable vacuum forming apparatus. 3,822,978, Cl. 425-388.000.
Nieten- und Metallwarenfabrik Alfred Honsel: *See*—
Elflein, Manfred, 3,822,595.
Nijo, Kiyoichi, to Naniwa Sangyo Kabushikigaisha. Combination type refrigerator. 3,822,564, Cl. 62-156.000.
Nikomarov, Samuil Solomonovich: *See*—
Ogly, Asan-Nuri Abdulla; Baldenko, Dmitry Fedorovich; Gusman, Moisei Timofeevich; Kochnev, Anatoly Mikhailovich; and Nikomarov, Samuil Solomonovich, 3,822,972.
Nimtz, Klaus, to Palitex Project Company GmbH. Gas singeing apparatus for textile yarn processing machine. 3,822,452, Cl. 29-63.000.
Ning, Robert Ye-Fong; and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. 5-Lower alkanoyl-2-(2-azidoacetamido) benzophenone. 3,823,166, Cl. 260-349.000.
Nippon Electric Company, Limited: *See*—
Saito, Noriaki, 3,823,269.
Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Nagahama, Yasuo, 3,823,244.
Suzuki, Kazuhiko, 3,823,245.
Tomisawa, Norio; Uchiyama, Yasuji; Okumura, Takatoshi; and Takeda, Toshio, 3,823,390.
Nippon Oils and Fats Company Limited: *See*—
Kame, Masaharu; Koda, Hideyuki; and Igehara, Hiromi, 3,823,090.
Nippondenso Co. Ltd.: *See*—
Hobo, Nobuhito; and Suzuki, Yutaka, 3,822,679.
Nischk, Gunther: *See*—
Bodesheim, Ferdinand; Radlmann, Eduard; Kohler, Armin; Gutschik, Ernst; and Nischk, Gunther, 3,823,123.
Nishimura, Matsuo, to Yasui Sangyo Company Limited. Apparatus for controlling the upward and downward movements of elevator. 3,822,635, Cl. 91-410.000.
Nishio, Daijiro: *See*—
Oku, Eitaro; Nishio, Daijiro; and Ezawa, Hirokatsu, 3,823,156.
Noguchi, Akio; and Tsuda, Shinsuke, to Mitsubishi Jukogyo Kabushiki Kaisha. Automatic tool exchanger for large-scaled floor-type horizontal boring machines. 3,822,466, Cl. 29-568.000.
Nojima, Shinichi: *See*—
Katakura, Shiro; and Nojima, Shinichi, 3,822,808.
Nolan, John L., to Hollister Incorporated. Urostomy device. 3,822,704, Cl. 128-283.000.
Nomarski, Georges: *See*—
Dalbera, Jean-Pierre; and Nomarski, Georges, 3,822,926.
Nonaka, Terumaro; Ishiguro, Yoshinobu; Yamatsu, Isao; Seki, Chiaki; Aoki, Shuzo; Ohnuki, Yutaka; and Koga, Yoshihiro, to Eisai Co., Ltd. Process for the preparation of thiamphenicol glycinate. 3,823,182, Cl. 260-482.00r.
Norand Corporation: *See*—
Chadima, George E., Jr.; and Bruce, Robert A., 3,823,388.
Nordalpina-Anstalt: *See*—
Rychen, Niklaus, 3,822,675.
Norris, Richard C.: *See*—
Heitman, Richard E.; and Norris, Richard C., 3,823,389.
Norris, Richard C., to Little, Arthur D., Inc. Data transfer device for word processing system. 3,823,393, Cl. 340-172.500.
Northern Illinois Gas Company: *See*—
Batz, James E., 3,823,355.
Northrop Corporation: *See*—
Manchester, William E.; and Hugill, Douglas B., 3,823,303.
Novipro: *See*—
Jacquelin, Guy J., 3,823,059.
Noyce, Robert N.: *See*—
Souza, Augustine A., 3,822,720.
Nozawa, Hideo, to Kabushiki Kaisha Kaini Seikosha. Waterproof watchcase. 3,822,546, Cl. 58-90.00r.
Nuss, Barry D.: *See*—
Russell, Robert J.; Young, William; and Nuss, Barry D., 3,822,523.
Nutten, Warren D.; and Phillips, Bernard C., to Borg-Warner Corporation. Charge forming method and apparatus with overspeed governor. 3,822,685, Cl. 123-114.000.
N.V. Bekaert S.A.: *See*—
Hoorelbeke, Luc, 3,822,575.
N.V. Nederlandse Gasunie: *See*—
Oranje, Leendert, 3,822,533.
Obenshain, David Noel, to Westvaco Corporation. Rotary cutter with quick change knife. 3,822,625, Cl. 83-342.000.
Oberhansli, Peter, to Givaudan Corporation. Process for the manufacture of cycloalkenones. 3,823,190, Cl. 260-586.00r.
Obermann, George; Enger, Michael H.; and Misik, Michael F., Jr., to Controls Company of America. Timer. 3,823,280, Cl. 200-38.00r.
O'Blenes, George H.: *See*—
Knight, Richard Langham Castle; and O'Blenes, George H., 3,822,588.
Ochiai, Takeshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Inflatable restraint device for occupants of vehicles and the like. 3,822,895, Cl. 280-150.0ab.
O'Connor, Chadwell: *See*—
Harris, David W.; and O'Connor, Chadwell, 3,822,651.
O'Connor, Chadwell. Panhead drag mechanism. 3,822,769, Cl. 188-290.000.
Oda, Eisuke: *See*—
Shii, Hikaru; and Oda, Eisuke, 3,823,210.
Oehler-, Wyhlen-Sagertechnik AG: *See*—
Suter, Walter, 3,822,766.
Oehlerking, Conrad: *See*—
Appel, Hermann; Majer, Horst-Rudiger; and Oehlerking, Conrad, 3,822,907.
Oelmayer, Reinhold; Seelos, Albert; Seitz, Helmut; Mayer, Heinz; Duell, Joseph; Hertl, Wilhelm; and Hoch, Hans-Jorg, to Morat, Franz, GmbH, Firma. Method and apparatus for generating a multicolored pattern. 3,823,257, Cl. 178-5.20r.
Office National d'Etudes et de Recherches Aerospatiales (par abreviation: O.N.E.R.A.): *See*—
Jamet, Jean F.; and Balageas, Daniel L., 3,822,580.
Ogino, Yoshio: *See*—
Amagami, Keizo; Mori, Hazime; Kobayashi, Takao; Kiuchi, Mitsuyuki; and Ogino, Yoshio, 3,823,296.
Ogly, Asan-Nuri Abdulla; Baldenko, Dmitry Fedorovich; Gusman, Moisei Timofeevich; Kochnev, Anatoly Mikhailovich; and Nikomarov, Samuil Solomonovich. Multistart helical rotor mechanism. 3,822,972, Cl. 418-48.000.
Ohfuji, Tadao, to Happy Shokai Co., Ltd. Improved photograph mount. 3,822,495, Cl. 40-158.000.
Ohio State University Research Foundation, The: *See*—
Walter, Carlton H.; Munk, Benedikt Aa.; and Thiele, Gary A., 3,823,403.
Ohnuki, Yutaka: *See*—
Nonaka, Terumaro; Ishiguro, Yoshinobu; Yamatsu, Isao; Seki, Chiaki; Aoki, Shuzo; Ohnuki, Yutaka; and Koga, Yoshihiro, 3,823,182.
Ohta, Eizo: *See*—
Okada, Hisao; Ohta, Eizo; Otani, Takeji; Beppu, Michimasa; and Yoneyama, Hiroaki, 3,823,204.
Ohtaguro, Tadayasu: *See*—
Takayama, Takeshi; Tanita, Akeshi; Hoshina, Saburo; and Ohtaguro, Tadayasu, 3,823,294.
Okada, Hisao; Ohta, Eizo; Otani, Takeji; Beppu, Michimasa; and Yoneyama, Hiroaki, to Mitsubishi Rayon Company, Ltd. Acid dye dyeable acrylonitrile copolymer, fibers thereof and process for the preparation thereof. 3,823,204, Cl. 260-898.000.
Oku, Eitaro; Nishio, Daijiro; and Ezawa, Hirokatsu, to Fuji Photo Film Co., Ltd. Process for the production of pyrazolone derivatives. 3,823,156, Cl. 260-310.00a.
Okumura, Jun: *See*—
Naito, Takayuki; and Okumura, Jun, 3,823,141.
Okumura, Takatoshi: *See*—
Tomisawa, Norio; Uchiyama, Yasuji; Okumura, Takatoshi; and Takeda, Toshio, 3,823,390.
Olin Corporation: *See*—
Hammond, Philip D.; and Franco, Nicholas B., 3,823,174.
Sprague, Ernest H., 3,823,225.
Ollerhead, Rolfe S. Chair base device. 3,822,851, Cl. 248-372.000.
Olsen, Alden W.: *See*—
Birckhead, Lennox, Jr.; and Olsen, Alden W., 3,823,209.
Olsen, Willi, to Siemens Aktiengesellschaft. Compressed-gas-insulated electric switching system. 3,823,346, Cl. 317-103.000.
Olympus Optical Co. Ltd.: *See*—
Komiya, Osamu, 3,822,697.
Matsubara, Masaki, 3,822,931.
Takayama, Syuichi, 3,822,695.
Oranje, Leendert, to N.V. Nederlandse Gasunie. Device for removing impurities from gases. 3,822,533, Cl. 55-394.000.
Orth, Charles D., to Controls Company of America. Refrigeration system incorporating temperature responsive wax element valve controlling evaporator outlet temperature. 3,822,563, Cl. 62-217.000.

Oshima, Susumu, to Toyoda Koki Kabushiki Kaisha. Side dressing device. 3,822,689, Cl. 125-11.0cd.

Osroff, Martin M. Utility-door storage container. 3,822,925, Cl. 313-242.000.

Ostenssen, Sture, to Fashion Tress, Inc. Pre-curled wig. 3,822,712, Cl. 132-31.000.

Ostrander, Robert K. Tearing eye doll actuated by squeezing the torso. 3,822,500, Cl. 46-135.00a.

O'Sullivan, Eugene Francis; Seymour-Walker, Kay John; Webb, David John Tudor; Bevan, Christopher Graham; Ross, Keith; and Works, Darnall. Apparatus for producing pressed concrete articles. 3,822,979, Cl. 425-410.000.

Otani, Takeji: *See*—
Okada, Hisao; Ohta, Eizo; Otani, Takeji; Beppu, Michimasa; and Yoneyama, Hiroaki, 3,823,204.

Otey, Felix H.; Westhoff, Richard P.; and Mehltretter, Charles L., to United States of America, Agriculture. Flame-retardant polyurethane foams. 3,823,132, Cl. 260-210.00r.

Ottestad, Jack B., to Impulse Products Corporation. Control means for a fluid-powered device. 3,822,633, Cl. 91-224.000.

Oudewaal, Martin J., to Diatek, Inc. Clinical thermometer probe and disposable cover therefor. 3,822,593, Cl. 73-343.00r.

Ovshinsky, Stanford R.: *See*—
Fritzsche, Hellmut; Ovshinsky, Stanford R.; Shaw, Robert F.; Silver, Marvin; and Smejtek , Pavel, 3,823,331.

Owatonna Tool Company: *See*—
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Owens-Corning Fiberglas Corporation: *See*—
Ward, John E., Jr.; and Garick, Bordie B., 3,823,219.

Owens-Illinois Inc.: *See*—
Amberg, Stephen W.; Doherty, Thomas E.; and Heyne, Clarence A., 3,822,459.
Byrum, Bernard W., Jr.; and Ernsthausen, Roger E., 3,823,394.
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Oxy Metal Finishing Corporation, mesne: *See*—
Minbiole, Louis J.; Clark, Chester G.; and Neumann, John W., 3,823,083.
Minbiole, Louis J., Jr.; Clark, Chester G.; and Neumann, John W., 3,823,074.

Paavola, Jorma; and Jutila, Lasse, to Kone-Lamminen Oy. Control system for car washing machines. 3,823,356, Cl. 318-39.000.

Pagdin, Brian Colin, to GKN Transmissions Limited. Braking systems. 3,822,922, Cl. 303-24.00a.

Palitex Project Company GmbH: *See*—
Nimtz, Klaus, 3,822,452.

Palmgren, Jan Ragnar, to Kommanditoblaget United Stirling (Sweden) AB & Co. Pipe configuration for hot gas engine. 3,822,552, Cl. 60-517.000.

Pancoast, Ervin M. Hydraulic multiplier vehicular system. 3,822,758, Cl. 180-70.004.

Parikh, Mavendra: *See*—
Bolling, Fritz; Mayer, Armin; Parikh, Mavendra; and Toussaint, Friedrich, 3,823,042.

Parker, Robert. Electrothermal analog temperature indicating device. 3,822,594, Cl. 73-356.000.

Parnell, Edgar William: *See*—
Carpenter, Keith; Heywood, Basil Jason; Parnell, Edgar William; Metivier, Jean; and Boesch, Roger, 3,823,008.

Patel, Jayantilal Mohanbhai; and Durchholz, Richard Francis, to Procter & Gamble Company, The. Cryogenic aromatization of instant coffee. 3,823,241, Cl. 426-386.000.

Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich. Electroslag remelting process. 3,823,242, Cl. 13-9.000.

Pattison, Martin O.: *See*—
Matthews, Jamie F., Jr.; and Pattison, Martin O., 3,822,559.

Patton, John T.: *See*—
Pizzini, Louis C.; Ramlow, Gerhard G.; Patton, John T.; and Levis, William W., Jr., 3,823,201.

Paule, Willy: *See*—
Bernhardt, Walter; and Paule, Willy, 3,822,920.

Paxton, David J.: *See*—
Hoffman, Stanley A.; and Paxton, David J., 3,822,939.

Paxton, Floyd G. Plastic clip for closing flexible plastic bag. 3,822,441, Cl. 24-30.50s.

Peabody Barnes, Inc.: *See*—
Barton, William Forbes; and Reese, William E., 3,823,328.

Pearce, Shairyl I.: *See*—
Audiffred, Sidney J.; Bump, David W.; Erkkila, Raymond N.; Johnson, Lowell E.; and Pearce, Shairyl I., 3,822,771.

Pecoraro, Raymond P.: *See*—
Agusta, Benjamin; Bardell, Paul H.; Castrucci, Paul P.; Henle, Robert A.; and Pecoraro, Raymond P., 3,823,348.

Pelenc, Yves; and Bernard, Georges, to Merlin Gerin. Magnetic blast alternating current circuit interrupter comprising a rectifying arc extinction circuit. 3,823,341, Cl. 317-11.00a.

Pellerin, Jacques P. M.: *See*—
Foucault, Pierre A.; and Pellerin, Jacques P. M., 3,822,809.

Pendleton, Wesley William; and Thompson, Robert Clifton, to Anaconda Wire and Cable Company. Wire insulation testing apparatus with means indicating insulation faults per predetermined incremental length. 3,823,370, Cl. 324-54.000.

Pennington, Marion G. Intravenous solution dispenser. 3,822,700, Cl. 128-214.00c.

Perc, Jean-Claude. Reeling device. 3,822,842, Cl. 242-129.720.

Percival, Albert: *See*—
Corbett, John Roger; and Percival, Albert, 3,823,154.

Perez, Jean, to Automobiles Peugeot and Regie Nationale des Usines Renault. Fuel feed devices for gas-operated internal combustion engines. 3,822,687, Cl. 123-198.0db.

Perkin-Elmer Corporation, The: *See*—
Roche, John M.; and Sawyer, Rene C., Jr., 3,822,941.
Zernike, Frits, 3,822,927.

Perry, Dale C., to Goodyear Tire & Rubber Company, The. Polymerization process. 3,823,121, Cl. 260-82.100.

Persichini, Dominic J. Power driven kite string reel. 3,822,839, Cl. 242-96.000.

Peters, Karl-Heinz; and Neeff, Rutger, to Bayer Aktiengesellschaft. Pigment dyestuffs. 3,823,167, Cl. 260-372.000.

Peters, Robert W. Stator core winding machine. 3,822,830, Cl. 242-1.10r.

Petersen, Harro: *See*—
Merger, Franz; and Petersen, Harro, 3,823,143.

Peterson, Fred M. Anti-theft trailer hitch. 3,822,900, Cl. 280-507.000.

Peterson, Gunter: *See*—
Haferkamp, Heinz; and Peterson, Gunter, 3,822,955.

Peterson, John Allan, to Honeywell Information Systems Inc. Concealed latch assembly. 3,822,904, Cl. 292-78.000.

Peterson, Ralph L. Apparatus for moving a plug fitting. 3,822,718, Cl. 137-317.000.

Petri Aktiengesellschaft: *See*—
Muller, Reinhold; and Randelzhofer, Konrad, 3,822,894.

Petro, James; and Rively, Clair M., to Westinghouse Electric Corporation. Method of manufacturing beaded filament coils for electric lamps and similar devices. 3,822,455, Cl. 29-25.180.

Petruzzi, Rudolph E., to Anaconda Company, The. Strand connecting method. 3,822,456, Cl. 29-628.000.

Petzetakis, Aristovoulos G. Method of making a pipe-coupling part. 3,823,216, Cl. 264-89.000.

Pfeifer, Louis F. J., to Heyman Manufacturing Company. Female contact blade PN. 3,823,392, Cl. 339-295.00r.

Pharmacia AB: *See*—
Jederstrom, Gustaf L., 3,823,229.

Philip Morris Incorporated: *See*—
Braginetz, Paul A., 3,822,781.

Phillips, Austin, to McDonnell Douglas Corporation. Prevention of hydrogen embrittlement. 3,823,075, Cl. 204-38.00b.

Phillips, Barbara H.: *See*—
Brower, Frank M.; Phillips, Barbara H.; Matzek, Norman E.; and Musinski, Arthur L., 3,823,226.

Phillips, Bernard C.: *See*—
Nutten, Warren D.; and Phillips, Bernard C., 3,822,685.

Phillips Petroleum Company: *See*—
Box, E. O., Jr.; and Farha, Floyd, Jr., 3,823,088.
Middlebrook, Terence C., 3,823,109.

Phillips, Ruben Verldon, to Cincinnati Milacron Inc. Nut driver. 3,822,616, Cl. 81-90.00c.

Phillips, Samuel R.: *See*—
Cade, George I.; Beach, Burt L.; Friesen, Milo E.; and Phillips, Samuel R., 3,822,967.

Philmont Manufacturing Company: *See*—
Hargett, Lawrence, 3,823,052.

Philofsky, Harold M.; and Sanghavi, Pravin A., to Westinghouse Electric Corporation. Electrical apparatus with high voltage electrical conductor insulated by material including high dielectric constant inserts. 3,823,334, Cl. 310-196.000.

Phoenix Steel Corporation: *See*—
Vitale, Martin H.; and Gricol, Joseph D., 3,823,243.

Pietsch, Ervin I.: *See*—
Walk, Howard J.; Pietsch, Ervin I.; and Smith, Garth R., 3,822,649.

Pike, John E.: *See*—
Lincoln, Frank H., Jr.; and Pike, John E., 3,823,180.

Pike, Peter P., to Westinghouse Brake and Signal Company. Proving circuits for vehicle wheel spin or slide correction apparatus. 3,823,373, Cl. 324-73.00r.

Pilas Secas Jupiter, S.A.: *See*—
Lopez Sanchez, Demetrio, 3,823,039.

Pilgram, Kurt H. G.; and Skiles, Richard D., to Shell Oil Company. Pyrimidone herbicides. 3,823,135, Cl. 260-251.00r.

Pilotte, Roland. Refrigerant wrap for an animal's limb. 3,822,705, Cl. 128-379.000.

Ping, Willard H., to Texaco Inc. Method and apparatus for cleaning a producing well. 3,822,750, Cl. 166-309.000.

Pinzone, Joseph A.: *See*—
Troje, Gerald J.; Schiavone, Edward L.; and Pinzone, Joseph A., 3,822,936.

Piret, Jean, to Automobiles Peugeot and Regie Nationale des Usines Renault. Control circuit for an automatic gear box. 3,822,611, Cl. 74-753.000.

Pitney-Bowes, Inc.: *See*—
Mikan, Donald G.; and Presti, Achille A., 3,822,643.

Pittman, Allen G.; and Wasley, William L., to United States of America, Agriculture. Fluorinated esters. 3,823,171, Cl. 260-408.000.

Pizzini, Louis C.: *See*—
Levis, William W., Jr.; and Pizzini, Louis C., 3,823,176.

Pizzini, Louis C.; Ramlow, Gerhard G.; Patton, John T.; and Levis, William W., Jr., to BASF Wyandotte Corporation. Highly-stable graft copolymer dispersions in polyols containing usaturation and polyurethanes prepared therefrom. 3,823,201, Cl. 260-861.000.

Plastico, Inc.: *See—*
Graeper, Michael R., 3,822,980.

Platt International Limited: *See—*
Croasdale, Fred; and Evans, Raymond Victor, 3,822,541.

Pletscher, Oskar, to Furnace for melting or heating metals. . 3,822,873, Cl. 266-33.00r.

Plockl, Johann, to Sick, Erwin, Optik-Elektronik. Method of and apparatus for reading information contained in coded form. 3,823,326, Cl. 250-568.000.

Pohan, Charles: *See—*
Wismer, Marco; Pohan, Charles; Miller, Kenneth E.; and Hansen, Charles M., 3,823,027.

Polaroid Corporation: *See—*
Land, Edwin H., 3,822,934.

Politechnika Gdanska: *See—*
Juchniewicz, Romuald, 3,822,998.

Pollock, Adrian Anthony. Electrical circuit means for use in acoustic emission detecting and/or recording apparatus. 3,822,586, Cl. 73-71.400.

Polychrome Corporation: *See—*
Deutsch, Albert S.; and Poppo, Joseph M., 3,823,130.

Ponder, Fernando J., to Ferro Corporation. Light stabilized polymer compositions and benzotriazole stabilizers. 3,823,112, Cl. 260-45.80n.

Pope, Bill J., to Brigham Young University. Liquid-liquid extraction and plug-flow reactor apparatus. 3,822,999, Cl. 23-270.500.

Popov-Iliin, Boris Petrovich: *See—*
Yakobson, Yakov Savelievich; Sysin, Alexandr Yakovievich; Leonov, Vyacheslav Stepanovich; Ignatovich, Vladimir Alexeevich; Popov-Iliin, Boris Petrovich; Skachkov, Alexandr Nikolaevich; Skudina, Natalia Alexandrovna; Forichev, Sergei Gavrilovich; Degtyarev,Gavriil Artemovich; Bir, Mirev Leizerovich; Kovanov, Nikolai Ivanovich; Melnikov, Jury Sergeevich; and Voskoboinikova, Lidia Mikhailovna, 3,822,418.

Poppel, Joachim: *See—*
Hauck, Franz; and Poppel, Joachim, 3,822,581.

Poppo, Joseph M.: *See—*
Deutsch, Albert S.; and Poppo, Joseph M., 3,823,130.

Population Research Incorporated: *See—*
Bolduc, Lee R., 3,822,702.

Porter, Gerald K.: *See—*
Asbelle, Charles C.; Arrigo, Michael F.; and Porter, Gerald K., 3,823,208.

Possis Corporation: *See—*
Straub, Melvin J.; and Schuett, Thomas L., 3,823,053.

Powell, Gary L.: *See—*
Burr, John F.; and Powell, Gary L., 3,823,342.

Power Conversion, Inc.: *See—*
Jagid, Bruce E., 3,823,040.

PPG Industries, Inc.: *See—*
Chang, Wen-Hsuan, 3,823,051.
Chang, Wen-Hsuan; Dowbenko, Rostyslaw; and Anderson, Carl C., 3,823,124.
Wismer, Marco; Pohan, Charles; Miller, Kenneth E.; and Hansen, Charles M., 3,823,027.

PPG Industries, Inc., mesne: *See—*
Wisnewski, John P.; and Treuhaft, Martin B., 3,822,531.

Prasse, Harold F.; and McCormick, Harold E., to Ramsey Corporation. Cartridge oil seal for rotating combustion engines. 3,822,973, Cl. 418-142.000.

Pratt, Albert R., to Raytheon Company. Tactile keycap. 3,822,776, Cl. 197-103.000.

Preisig, Joseph Otto: *See—*
Feryszka, Rubin; and Preisig, Joseph Otto, 3,823,332.

Presti, Achille A.: *See—*
Mikan, Donald G.; and Presti, Achille A., 3,822,643.

Price Brothers Company: *See—*
Marcum, Alfred L., Jr., 3,822,831.

Pritchard, Lewis C.: *See—*
Clapp, John M.; and Pritchard, Lewis C., 3,822,724.

Procter & Gamble Company, The: *See—*
Fanta, Wayne I.; and Shulman, Joel I., 3,823,177.
Patel, Jayantilal Mohanbhai; and Durchholz, Richard Francis, 3,823,241.

Procter, A. E., & Montecatini Edison S.p.A.: *See—*
Proctor, Albert Edward; and Castorani, Giovanni, 3,822,983.

Proctor, Albert Edward; and Castorani, Giovanni, to Procter, A. E., & Montecatini Edison S.p.A. Ground flares. 3,822,983, Cl. 431-202.000.

Pruniaux, Bernard Roger; Riley, Terence James; Ryder, Robert Morgan; and Waggener, Herbert Atkin, to Bell Telephone Laboratories, Incorporated. Field effect transistor structures and methods. 3,823,352, Cl. 357-23.000.

Pylon Manufacturing Corporation: *See—*
Roberts, Harry W., 3,822,577.

Quakenbush, Howard M., to Flexstiel Industries, Inc. Compound swivel structure for vehicle seat support. 3,822,852, Cl. 248-418.000.

Quaker Oats Company, The: *See—*
Brindell, Gordon D.; and Macander, Rudolph F., 3,823,115.

Quemore, William J. Sr. Violin. 3,822,628, Cl. 84-275.000.

Questor Corporation: *See—*
Grimes, Gary S., 3,822,806.

Raab, Ronald Buxton: *See—*
Troyer, Richard Lloyd; and Rohweder, Theodore Richard, 3,822,836.

Radke, Arthur O.; and Eimen, Shawn H., to Universal Oil Products Company. Convertible seat, support platform and storage compartment for motor vehicle. 3,822,911, Cl. 296-66.000.

Radlmann, Eduard: *See—*
Bodesheim, Ferdinand; Radlmann, Eduard; Kohler, Armin; Gutschik, Ernst; and Nischk, Gunther, 3,823,123.

Ramlow, Gerhard G.: *See—*
Pizzini, Louis C.; Ramlow, Gerhard G.; Patton, John T.; and Levis, William W., Jr., 3,823,201.

Ramsey Corporation: *See—*
Prasse, Harold F.; and McCormick, Harold E., 3,822,973.

Randazzo, Giacomino: *See—*
Giordano, Carmelo; Esposito, Renato; and Randazzo, Giacomino, 3,823,233.

Randelzhofer, Konrad: *See—*
Muller, Reinhold; and Randelzhofer, Konrad, 3,822,894.

Rander, Kiran J.: *See—*
Ulmer, Walter R.; and Rander, Kiran J., 3,822,780.

Rao, Eddya Gopalakrishna. Irrigation siphon apparatus. 3,822,715, Cl. 137-140.000.

Rapp, A. Karl, to Inselek Inc., mesne. Circuit for shifting and amplifying input voltages. 3,823,330, Cl. 307-214.000.

Rashid, Moinuddin S., to United States of America, Atomic Energy Commission. Method for coating graphite filaments with refractory metal carbides. 3,823,029, Cl. 117-118.000.

Rathmell, Richard K. Ski boot hinged on sole. 3,822,491, Cl. 36-2.5al.

Ratti, Lorenzo; and Visani, Francesco, to Montecatini Edison S.p.A. Process for producing copolymers of vinyl chloride with acrylic acid esters. 3,823,116, Cl. 260-63.0ha.

Rausch, David A.; and Johnston, Paul R., to Diamond Power Specialty Corporation. Flexible power connection means for traveling elements. 3,823,279, Cl. 191-12.00r.

Raver, Jack. Adjustable folding chair. 3,822,913, Cl. 297-18.000.

Raychem Corporation: *See—*
Kampe, Andrew J., 3,823,217.

Raymond, Frank E.: *See—*
Ferguson, Hugo S.; and Raymond, Frank E., 3,822,732.

Raytheon Company: *See—*
Gilliatt, Charles L., 3,823,293.
Pratt, Albert R., 3,822,776.

RCA Corporation: *See—*
Carrell, Ross Michael, 3,823,409.
Feryszka, Rubin; and Preisig, Joseph Otto, 3,823,332.
George, John Barrett, 3,823,379.
Haferl, Peter Eduard, 3,823,264.
Shrader, Terry M., 3,822,453.

Recktenwald, James N. Control valve for a catatytic heater. 3,822,824, Cl. 236-102.000.

Reddy, Junuthula, to Bendix Corporation, The. Electric fuel pump control circuit for intermittent injection electronic fuel control systems. 3,822,677, Cl. 123-32.0ea.

Reed, Clovis H. Wire and cable insulation removing device. 3,822,615, Cl. 81-9.510.

Reed, Eva. Simultaneous hair drying and styling. 3,822,484, Cl. 34-99.000.

Reed, Gordon Howard: *See—*
Hodgson, Philip; Munson, Robert Thomas; and Reed, Gordon Howard, 3,823,414.

Reedy, James D.: *See—*
Johnson, Morris A.; Reedy, James D.; and Yang, Kang, 3,823,194.

Reese, William E.: *See—*
Barton, William Forbes; and Reese, William E., 3,823,328.

Regie Nationale des Usines Renault: *See—*
Perez, Jean, 3,822,687.
Piret, Jean, 3,822,611.

Rehder, Robert H.: *See—*
Christie, Donald M. Lye, Ronald W.; and Rehder, Robert H., 3,823,248.

Reijonen, Veli Elias: *See—*
Reijonen, Yrjo Johannes; and Reijonen, Veli Elias, 3,822,744.

Reijonen, Yrjo Johannes; and Reijonen, Veli Elias. Straining tube for pipe well. 3,822,744, Cl. 166-235.000.

Reimlinger, Hans Karl; Shanahan, Robert W.; and Vandewalle, Jan Joseph Maurice, to Mallinckrodt Chemical Works. S-triazolo-(3,4-a)-isoquinolines in reducing inflammation. 3,823,238, Cl. 424-258.000.

Reintjes, Rudolf Carlo: *See—*
Cramwinckel, Arnaud; and Reintjes, Rudolf Carlo, 3,822,556.

Reisman, Abraham J., to Monsanto Company. Stabilized polyvinyl acetal interlayers. 3,823,113, Cl. 260-45.80n.

Relis, Matthew J.: *See—*
Andreaggi, Joseph R.; Graf, Robert J.; and Relis, Matthew J., 3,823,405.

Resistance Welder Corporation: *See—*
Blair, Robert H., 3,823,300.

Revere Copper and Brass Incorporated: *See—*
Robinson, John W.; Howard, John W.; Hahn, Robert E.; and Hemming, Donald C., 3,822,993.

Rey, Paul R., to United Aircraft Corporation. Battery peaking unit for fuel cell power plants. 3,823,358, Cl. 320-3.000.

Reynolds International, Inc.: *See—*
Beeler, Leland Stanford, 3,823,078.
Beeler, Leland Stanford, 3,823,079.

Reynolds Metals Company: *See—*
Hinrichs, Donald R., 3,822,977.

Rhine, Samuel: *See—*
Showalter, Merle Robert; and Rhine, Samuel, 3,822,680.

Rhone-Poulenc S.A.: *See—*
Sauli, Michel, 3,823,240.

Ricci, Vero: *See—*
Shorin, Joseph E.; and Ricci, Vero, 3,822,812.

Richter, Ernest. Pendular piston rotary explosion engine. 3,822,676, Cl. 123-8.410.

Richter, Warren F.: *See—*
Jones, Alun R.; and Richter, Warren F., 3,823,323.

Rieger, Werner; and Dalferth, Hans Horst. Chain couplers. 3,822,549, Cl. 59-85.000.

Rigney, Edward T.; Edgerton, Bradford W.; and Benson, Richard A., to Trans-Sonics, Inc. Remote condition indicator for load-lifting device. 3,823,395, Cl. 340-267.00c.

Riley, Terence James: *See—*
Pruniaux, Bernard Roger; Riley, Terence James; Ryder, Robert Morgan; and Waggener, Herbert Atkin, 3,823,352.

Rindfleisch, Volker: *See—*
Willasch, Dieter; Schiewe, Bernd; and Rindfleisch, Volker, 3,823,322.

Rinehuls, Richard A., to Seary Manufacturing Co. Apparatus for automatically mounting transparencies in slidemounts. 3,822,460, Cl. 29-211.00d.

Ringle, Louis A.; and Brown, Jack M., Jr., to Franklin Mint, Inc., The. Coin display device. 3,822,782, Cl. 206-.083.

Ritzerfeld, Gerhard. Thermocopying apparatus. 3,823,317, Cl. 250-318.000.

Rively, Clair M.: *See—*
Petro, James; and Rively, Clair M., 3,822,455.

Rivenaes, Ivar, to Ivar Rivenaes A/S. Trawl arrangements. 3,822,497, Cl. 43-9.000.

Ro, Rolland Shih-Yuan, to Du Pont de Nemours, E. I., and Company. Nickel complexes for curing polychloroprenes. 3,823,173, Cl. 260-439.00r.

Roart Plastics, Inc.: *See—*
Smith, Robert L., 3,823,254.

Roberts, Harry W., to Pylon Manufacturing Corporation. Method for making universal blade construction. 3,822,577, Cl. 72-379.000.

Roberts, Karl H.; and Haver, Sandford A., to Colgate-Palmolive Company. Powdered toilet paper. 3,823,057, Cl. 161-112.000.

Robertson, William: *See—*
Holmes, James; and Robertson, William, 3,822,602.

Robinson, Daniel E.; and Schmidt, Robert A., Jr., to General Cable Corporation. Optical scanning of electrical cable shields. 3,822,945, Cl. 356-159.000.

Robinson, John W.; Howard, John W.; Hahn, Robert E.; and Hemming, Donald C., to Revere Copper and Brass Incorporated. Production of chrome tanning composition from waste chromium - copper picklin liquor. 3,822,993, Cl. 8-94.270.

Robinson, Prentice I.: *See—*
Howard, Robert; Robinson, Prentice I.; and Menhennett, Herbert E., 3,823,397.

Roche, John M.; and Sawyer, Rene C., Jr., to Perkin-Elmer Corporation, The. Scanning monochromators. 3,822,941, Cl. 356-100.000.

Roche, William F.: *See—*
Stern, George; and Roche, William F., 3,823,067.

Rochette, George Omer. Automatic bars. 3,822,729, Cl. 141-92.000.

Rodac Pneumatic Tools: *See—*
Sjostrand, Gerald D., 3,822,518.

Rohr Industries, Inc.: *See—*
Hill, Charles C.; and Ross, James A., 3,822,647.

Rohrberg, Roderick G.; and Brubaker, Dale R., to United States of America, Air Force. Cassette-type tube welder. 3,823,298, Cl. 219-60.00a.

Rohweder, Theodore Richard: *See—*
Troyer, Richard Lloyd; and Rohweder, Theodore Richard, 3,822,836.

Rolari Systems, Inc.: *See—*
Burdick, Robert E.; and Wolf, Baxter K., 3,822,652.

Rolefson, Jerome F. Position locating device. 3,822,480, Cl. 33-280.000.

Roller mill of the edge runner type: *See—*
Brundiek, Horst; and Werner, Ludwig, 3,822,829.

Romanelli, Antonio. Multiple valve assembly. 3,822,722, Cl. 137-608.000.

Roschin, Valentin Fedorovich: *See—*
Krupin, Alexandr Vasilievich; Roschin, Valentin Fedorovich; Alekhin, Leonid Petrovich; Izotov, Valery Mikhailovich; Burov, Oleg Alexandrovich; Gavrilov, Viktor Mikhailovich; Chekanov, Alexandr Ermolaevich; Lepin, Viktor Petrovich; and Vinogradov, Fedor Terntievich, 3,822,574.

Rose, Fred K.: *See—*
Metcalfe, Arthur G.; and Rose, Fred K., 3,823,299.

Rosenberg, Isobel K. Animal toilet. 3,822,671, Cl. 119-1.000.

Rosenberger, Chester A., Jr., to FMC Corporation. Mechanism conveyor system with primary and auxiliary code mechanisms. 3,822,646, Cl. 104-88.000.

Rosenkranz, Barbara: *See—*
Schulte, Friedrich Wilhelm; Diels, Manfred; and Rosenkranz, Wilhelm, 3,822,458.

Rosenkranz, Wilhelm: *See—*
Schulte, Friedrich Wilhelm; Diels, Manfred; and Rosenkranz, Wilhelm, 3,822,458.

Ross, James A.: *See—*
Hill, Charles C.; and Ross, James A., 3,822,647.

Ross, Keith: *See—*
O'Sullivan, Eugene Francis; Seymour-Walker, Kay John; Webb, David John Tudor; Bevan, Christopher Graham; Ross, Keith; and Works, Darnall, 3,822,979.

Rotarides, Adam; and Bruderer, Werner, to Concast AG. Apparatus for guiding an oscillating continuous casting mold at a continuous casting installation with curved path of travel of the strand. 3,822,738, Cl. 164-260.000.

Rothwell, Eric; and Smalley, Graham, to Allied Colloids Limited. Polysaccharide based flocculants. 3,823,100, Cl. 260-6.000.

Routley, Michael J.: *See—*
Keane, Patrick J.; Moor, Alan B.; and Routley, Michael J., 3,823,377.

Roy, Alejo V.; and Brower, Mary E., to Worthington Biochemical Corporation. Prostatic acid phosphatase determination. 3,823,071, Cl. 195-103.50r.

Rudkin-Wiley Corporation: *See—*
Wiley, Nathaniel C., Jr., 3,822,910.

Rudolph, Dietmar H., 20% interest to Lee, Raymond, Organization,. Telephone locking device. 3,823,277, Cl. 179-189.00r.

Rudolph, Werner: *See—*
Messmer, Hubert; Monnerjahn, Walter; and Rudolph, Werner, 3,823,384.

Ruggen, Werner: *See—*
Bohm, Heinz-Dieter; Ruggen, Werner; Krellmann, Herbert; and Schluckebier, Wilhelm, 3,822,568.

Rump, August R.: *See—*
Butler, Richard A., Jr.; Hansen, Jack T.; Rump, August R.; and Arendt, Ruby R., 3,822,838.

Rushmere, John Derek, to Du Pont de Nemours, E. I., and Company. Zinc electroplating additive. 3,823,076, Cl. 204-55.00r.

Russell, Robert J.; Young, William; and Nuss, Barry D., to Kenco Corporation. Envelope opening apparatus and method. 3,822,523, Cl. 53-3.000.

Ryan, John W.: *See—*
Ryan, John W.; and Shapero, Wallace H. (said Shapero assor. to said), 3,823,089.

Ryan, John W.; and Shapero, Wallace H., said Shapero assor. to said Ryan, John W. Heat storage composition. 3,823,089, Cl. 252-70.000.

Rychen, Niklaus, to Nordalpina-Anstalt. Boiler for heating non-boiling heat transfer liquids. 3,822,675, Cl. 122-250.

Ryden, Joseph, Jr.: *See—*
Worlton, Dan C.; and Ryden, Joseph, Jr., 3,823,068.

Ryder, Robert Morgan: *See—*
Pruniaux, Bernard Roger; Riley, Terence James; Ryder, Robert Morgan; and Waggener, Herbert Atkin, 3,823,352.

Rynkowski, Gerald Alexander, to Schiller Industries, Inc. Dimensional measuring apparatus using optical scan especially for hardness testing. 3,822,946, Cl. 356-160.000.

Ryobi Co., Ltd.: *See—*
Takenaka, Yukimasa, 3,822,438.

Saint-Gobain Industries: *See—*
Val, Marcel Marie Antoine, 3,822,764.

Saito, Noriaki, to Nippon Electric Company, Limited. Speech path test system for time-division switching equipment. 3,823,269, Cl. 179-15.0bf.

Salsburg, Frederic S.; and Loomer, Weston R., to Hartman Metal Fabricators, Inc. Load squaring device for pallets. 3,822,795, Cl. 214-6.00s.

Salvi Antoine: *See—*
Cordelle, Michel; Crescini, Jean; Glenat, Henri; and Salvi Antoine, 3,823,364.

Salway, Peter Hugh, to Lucas, Joseph, (Industries) Limited. Control systems for vehicles. 3,822,684, Cl. 123-102.000.

Samejima, Masayoshi; Sugimoto, Isao; Suzuki, Akira; Koida, Yoshiyuki; Hirata, Goichi; and Tsukamoto, Goro, to Green Cross Corporation, The and Tanage Seiyaku Co., Ltd. Stable emulsion of fluorocarbon particles. 3,823,091, Cl. 252-312.000.

Sammons, Herbert F.: *See—*
Lindsey, L. E.; and Sammons, Herbert F., 3,822,862.

Sanctuary, Robert E., to Worcester Controls Corporation. Changeable speed and torque valve actuator. 3,822,612, Cl. 74-849.000.

Sanders, John H., to Dow Badische Company. Electrically-conductive textile fiber. 3,823,035, Cl. 117-226.000.

Sandoz-Wander, Inc.: *See—*
Houlihan, William J., 3,823,134.

Sandvik Aktiebolag: *See—*
Johansson, Ernst Lennar; and Lumen, Karl Lennart Gosta, 3,822,952.

Sanghavi, Pravin A.: *See—*
Philofsky, Harold M.; and Sanghavi, Pravin A., 3,823,334.

Sapper, Jorg, to Brown Boveri & Company Limited. Starting device for a synchronous machine. 3,823,357, Cl. 318-183.000.

Sato, Akira: *See—*
Kato, Hirotetu; Tajima, Tatsuya; and Sato, Akira, 3,823,018.
Nakamura, Hiroto; Doi, Ken-Ichi; Sato, Akira; and Suzuki, Yushin, 3,823,336.

Sato, Masamichi; Takahashi, Isoji; Komaki, Takao; and Honjo, Satoru, to Fuji Photo Film Co., Ltd. Liquid development apparatus for electrophotography. 3,822,670, Cl. 118-637.000.

Sauer, Winfriede: *See—*
Berger, Herbert; Gall, Rudi; Thiel, Max; Vomel, Wolfgang; and Sauer, Winfriede, 3,823,137.

Sauli, Michel, to Rhone-Poulenc S.A. Fungicidal hydantoin derivatives. 3,823,240, Cl. 424-273.000.

Saunders, Dennis L.: *See—*
Snyder, Lloyd R.; and Saunders, Dennis L., 3,823,087.

Saunders, Peter Reginald: *See—*
Lofquist, Robert Alden; and Saunders, Peter Reginald, 3,822,996.

Sawyer, Rene C., Jr.: *See—*
Roche, John M.; and Sawyer, Rene C., Jr., 3,822,941.

Scales, John Tracey. Inflatable support appliance. 3,822,425, Cl. 5-348.00r.

Schaudt Maschinenbau GmbH: *See—*
Vetter, Ulrich, 3,822,514.

Scheffels, Wilhelm; and Hoffmann, Ruprecht, to Steigerwald Strahltechnik GmbH. Electrode arrangement serving to accelerate a charge carrier beam in a vacuum. 3,823,335, Cl. 315-15.000.

Scheinpflug, Hans: *See—*
Buchel, Karl Heinz; Grewe, Ferdinand; and Scheinpflug, Hans, 3,823,236.

Schiavone, Edward L.: *See—*
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Schlossman, Irwin S., to Emery Industries, Inc. Process for the preparation of ethoxylated isethionates. 3,823,185, Cl. 260-513.00b.

Schluckebier, Wilhelm: *See—*
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Schmedemann, Walter, to U.S. Philips Corporation. Tiltable X-ray examination table. 3,822,875, Cl. 269-323.000.

Schmid, Anthony P., to Owens-Illinois, Inc. Conducting element having bundled substantially parallel crystalline conductors and process for manufacture. 3,823,252, Cl. 174-68.500.

Schmidt, Kenneth A., to Culligan International Company. Pretreatment for reverse osmosis process. 3,823,086, Cl. 210-23.000.

Schmidt, Paul: *See—*
Eichenberger, Kurt; Schmidt, Paul; and Schweizer, Ernst, 3,823,151.

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Schnegg, Robert: *See—*
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Schrader, Gerhard; Eue, Ludwig; Hack, Helmuth; Hirane, Seiichi; Aya, Masahiro; Kishino, Shigeo; and Fukazawa, Nobuo, to Bayer Aktiengesellschaft. Herbicides. 3,823,004, Cl. 71-87.000.

Schradieck, Richard H.: *See—*
Schradieck, Richard H.; and Lehti, Taisto A. (said Lehti, Taisto A. assor to said), 3,822,668.

Schradieck, Richard H.; and Lehti, Taisto A., said Lehti, Taisto A. assor to said Schradieck, Richard H. Roadside warning device. 3,822,668, Cl. 116-63.00p.

Schrag, Adam. Emergency brake lever position indicator. 3,822,669, Cl. 116-114.00r.

Schroder, Johann, to U.S. Philips Corporation. Arrangement for regulating supply of heat from a heat accumulating device. 3,823,305, Cl. 219-365.000.

Schroeder, Wilburn C. Hydrogenation of coal. 3,823,084, Cl. 208-10.000.

Schroer, Walter: *See—*
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Schuh, Theodore R.; and Mauceri, Frank A., to Nalco Chemical Company. Synthetic rubbers. 3,823,122, Cl. 260-85.100.

Schulte, Friedrich Wilhelm; Diels, Manfred; and Rosenkranz, Wilhelm; deceased (by Rosenkranz, Barbara; heir), to Fuchs, Otto. Method of making wheels. 3,822,458, Cl. 29-159.010.

Schulz, Gerald L.; and Mansur, Raymond T., to United States of America, Army. Ultrasonic cleaning and welding apparatus. 3,823,055, Cl. 156-580.000.

Schumacher, Frank A.: *See—*
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Schurger, Rainer; Walter, Lothar; Brandenstein, Manfred; and Feldle, Kurt, to SKF Industrial Trading and Developing Company. Journal means for mounting rotary drums. 3,822,605, Cl. 74-230.300.

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Scott, Sam C. Inflatable form breaker for molded construction. 3,822,861, Cl. 254-93.0hp.

Screen, Stafford Thomas, to British Castors Limited. Castors. 3,822,437, Cl. 16-45.000.

Seaberg, Paul A.; and Heyes, Lester P., to Staley, A. E., Manufacturing Company. Phosphatides. 3,823,170, Cl. 260-403.000.

Sealy, Inc.: *See—*
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Sebenik, Roger F.; and Gernand, Martin O., to Esso Research and Engineering Company. Promoted iron ore reduction process. 3,823,011, Cl. 75-26.000.

Sebulke, Johannes, to DEMAG Aktiengesellschaft. Cone friction brake. 3,822,768, Cl. 188-70.00r.

See-saw with foot operated linkage: *See—*
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Shelley, Shelley W. Apparatus for producing modular boxlike units. 3,822,853, Cl. 249-27.000.

Sheppard, Richard H. Power steering gear assembly. 3,822,759, Cl.

Sherman Car Wash Equipment Co.: *See—*
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Sherwood, Noble, to Textron, Inc. Rotary valve engine. 3,822,682, Cl. 123-73.00d.

Shii, Hikaru; and Oda, Eisuke, to Furukawa Electric Co., Ltd., The. Method of manufacturing oriented product of synthetic crystalline polymer. 3,823,210, Cl. 264-41.000.

Shimotake, Hiroshi: *See—*
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Shoji, Akira; Toda, Takao; Tanaka, Kano; and Hirashima, Takashi, to Canon Kabushiki Kaisha. Film cutting device. 3,822,624, Cl. 83-208.000.

Shore, Paul L., to Tapecaster TCM, Inc. Tape cartridge. 3,822,835, Cl. 242-55.19a.

Shore, Robert Alexander: *See—*
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Shorin, Joseph E.; and Ricci, Vero, to Aggogle Inc. Pouring attachment for paint cans. 3,822,812, Cl. 222-570.000.

Showalter, Merle Robert; and Rhine, Samuel. Isothermal valve seat for internal combustion engine. 3,822,680, Cl. 123-41.160.

Shrader, Terry M., to RCA Corporation. Method of making cathode ray tube internal shields. 3,822,453, Cl. 29-25.140.

Shulman, Joel I.: *See—*
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Siemianowski, Roman. Automatic control system for limiting ice formation in gutters and downspouts. 3,823,304, Cl. 219-213.000.

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Silverstein, Bernard F. Loss-prevention wallet clamp and chain device. 3,822,446, Cl. 24-3.00h.

Simon, Donald J.; and Fitzmayer, Louis H., to General Electric Company. Electronic oven with mode exciter and tuning probes. 3,823,295, Cl. 219-10.550.

Simone, Pasquale; and Schneider, Julius S., to Medi-Spec Corporation. Medical light and combating of hyperbilirubinemia. 3,822,706, Cl. 128-396.000.

Simonton, Robert D.; and Axe, Albert A., to Crescent Manufacturing Company. Automatic grinding machine. 3,822,510, Cl. 51-96.000.

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Simpson, Robert. Ship's hull. 3,822,661, Cl. 114-56.000.

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Sinha, Ram Ratan Prasad, to Westinghouse Electric Corporation. Transformer tester for indicating shorted conditions in power transformers. 3,823,369, Cl. 324-51.000.

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Skinner, James A. Dental hygiene appliance. 3,822,432, Cl. 15-23.000.

Skudina, Natalia Alexandrovna: *See—*
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Slack, Ramon Allan. Boat trailer. 3,822,899, Cl. 280-414.00r.

Small, Kathryn; and Vranko, Thomas. Fabric weave. 3,822,727, Cl. 139-383.00r.

Smalley, Graham: *See—*
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Smejtek , Pavel: *See—*
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Smith, Don W.: *See—*
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Smith, E. D.; and Knight, Robert C., to Soper-Macey Enterprises, Inc. Single or multiple stage bottom hole will pump. 3,822,970, Cl. 417-552.000.

Smith, Fred T. Noise reduction apparatus and method. 3,822,551, Cl. 60-428.000.

Smith, Garth R.: *See—*
Walk, Howard J.; Pietsch, Ervin I.; and Smith, Garth R., 3,822,649.

Smith, Joseph E.; Desantis, Raymond P.; and Detroyer, Georges D., to Wolverine-Pentronix, Inc. Apparatus for making annular parts. 3,822,622, Cl. 83-100.000.

Smith, Lowell R., to Monsanto Company. Preparation of 1,1,2,3-tetrachloropropene from 1,2,3-trichloropropane. 3,823,195, Cl. 260-654.00r.

Smith, Richard F., to GAF Corporation. Preparation of other adducts of N-vinyl-2-pyrrolidone. 3,823,160, Cl. 260-326.5fl.

Smith, Robert L., to Roart Plastics, Inc. Cable splice housing. 3,823,254, Cl. 174-92.000.

Smith, Walter E. Slide bar apparatus for guitar. 3,822,629, Cl. 84-314.000.

Smithers, James P.: *See—*
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Smolinsky, Gerald; Tien, Ping King; and Vasile, Michael Joseph, to Bell Telephone Laboratories, Incorporated. Thin film light guide. 3,822,928, Cl. 350-96.0wg.

Smucker, David E.: *See—*
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Snyder, Kenneth J.; and Valle, Howard C., to Ametek, Inc. Restraint system for tubular self-erecting devices. 3,822,874, Cl. 267-156.000.

Snyder, Lloyd R.; and Saunders, Dennis L., to Union Oil Company of California. Thin layer chromatographic method and apparatus. 3,823,087, Cl. 210-31.00c.

Sobolev, Jury Vasilievich: *See—*
Paton, Boris Evgenievich; Medovar, Boris Izrailevich; Andreev, Vladimir Prokhorovich; Boiko, Georgy Alexandrovich; Emelyanenko, July Georgievich; Sobolev, Jury Vasilievich; Shavrin, Adolf Ivanovich; Dolbenko, Evgeny Tikhonovich; Chernykh, Viktor Vasilievic; and Dykan, Vitaly Grigorievich, 3,823,242.

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Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine Tour Aquitaine: *See—*
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Societe des Procedes Modernes d'Injection Sopromi: *See—*
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Societe Generale de Constructions Electriques et Mecaniques (Alsthom): *See—*
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Societe Genevoise d'Instruments de Physique: *See—*
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Societe Industrielle Honeywell Bull: *See—*
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Soderberg Tollman AB: *See—*
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Soper-Macey Enterprises, Inc.: *See—*
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Souza, Augustine A., to Noyce, Robert N. Flow control assembly. 3,822,720, Cl. 137-525.100.

S.p.A. Lavorazione Materie Plastiche L.M.P.: *See—*
Colombo, Roberto, 3,823,047.

Speigel, Kenneth, to GTE Sylvania Incorporated. Method of fabricating a color cathode ray tube. 3,822,454, Cl. 29-25.130.

Speigel, Kenneth, to GTE Sylvania Incorporated. Process for removing coating from a cathode ray tube mask member. 3,823,080, Cl. 204-141.500.

Spence, William George. Individual vehicle wheel drive and suspension assembly. 3,822,757, Cl. 180-43.00a.

Spierings, Ferdinand Hubert Franciscus Gerardus. Hall-voltage device. 3,823,333, Cl. 310-11.000.

Spietschka, Ernst; and Ische, Friedrich, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Thiophenyl-substituted quinophthalone dispersion dyestuffs. 3,823,147, Cl. 260-283.00s.

Spitz, David A., to Industrial Nucleonic Corporation. Refiner network controller. 3,822,828, Cl. 241-33.000.

Spot-O-Gold Corporation: *See*—
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Sprague, Ernest H., to Olin Corporation. Removal of available chlorine from alkali metal chlorate-chloride solution and production of chlorin dioxide from said solution. 3,823,225, Cl. 423-478.000.

Springer, Reinhard: *See*—
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St. Clair Rubber Company: *See*—
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Stadnik, Vladimir Fedorovich: *See*—
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Stahl-Urban Company, mesne: *See*—
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Standard Brands Incorporated: *See*—
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Standard Oil Company: *See*—
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Stansbury, Benjamin H.; and Holmes, Frank A., to Jaybee Manufacturing Corporation. Springless self-latching hinge. 3,822,440, Cl. 16-142.000.

Stanton, Vernon W., Sr.: *See*—
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Stastny, Fritz; Gaeth, Rudolf; and Trieschmann, Hans-Georg. Production of expanded moldings of olefin polymers. 3,823,213, Cl. 264-51.000.

Staub, Alfred, to Ciba-Geigy AG. Quaternary anthraquinone dyestuffs. 3,823,169, Cl. 260-378.000.

Stauder, Bob E.: *See*—
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Stauffer Chemical Company: *See*—
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Ste Nouvelle des Ventilateurs G. Mouzon: *See*—
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Stedman, David: *See*—
Fisher, Gene A.; Janssen, Donovan M.; and Stedman, David, 3,823,415.

Stedman, Robert N., to Caterpillar Tractor Company. Master track link. 3,822,923, Cl. 302-58.000.

Steen, Floyd L., to General Electric Company. Commutation directing circuit for fault current limiting static switch. 3,823,343, Cl. 317-20.000.

Steigerwald Strahltechnik GmbH: *See*—
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Stekopytov, Alexei Alexeevich; Strekopytova, Tatyana Andreevna; Bogush, Lev Konstantinovich; Kuklin, Georgy Sergeevich; Super-Fainshtein, Naum Aronovich; and Severov, Viktor Sergeevich; deceased (by Efimova, Ljudmila Mikhailovna; Severov, Sergei Ivanovich;and Severova, Zinaida Pavlovna; heirs). Surgical instrument for joining osseous tissues by staples. 3,822,818, Cl. 227-124.000.

Stephens, John A., to Monsanto Company. Herbicidal method using salts of benzenesulfonyl ureas. 3,823,007, Cl. 71-103.000.

Stephenson, Robert L., to Allied Chemical Corporation. Belt retractor with spring biased auxiliary ratchet wheel. 3,822,840, Cl. 242-99.000.

Stern, George; and Roche, William F., to United Nuclear Corporation. Shaped nuclear fissionable bodies. 3,823,067, Cl. 176-66.000.

Sternbach, Leo Henryk: *See*—
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Stingl, Hans Alfred, to Toms River Chemical Corporation. Dialkylamino disazo sulfonic acid dyestuffs. 3,823,131, Cl. 260-186.000.

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Stobb, Rudolph, to Stobb Development Corporation, Inc. Apparatus for stacking flexible sheets. 3,822,793, Cl. 214-6.00h.

Stockhaus, Klaus: *See*—
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Stog, W., KG, Industrie- und Rohrleitungsbau: *See*—
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Stog, Wilhelm; and Springer, Reinhard, to Stog, W., KG, Industrie- und Rohrleitungsbau. Joint inserts for bridging expansion joints. 3,822,428, Cl. 14-16.000.

Stone, Edward: *See*—
Loew, Frederic Christian; and Stone, Edward, 3,823,111.

Stone, Eliot: *See*—
Leonard, Olive Gene; and Stone, Eliot, 3,823,033.

Stoner, Charles L., to United States of America, Atomic Energy Commission. Protective carrier for semiconductor chips. 3,823,350, Cl. 317-234.00r.

Stonner, Alfred; Kohling, Rolf; and Debus, Manfred. Device for the removal of individual samples from static bulk material. 3,822,600, Cl. 73-424.000.

Stowell, Sheldon J., to Tranter Manufacturing, Inc. Plate type heat exchanger and production. 3,822,742, Cl. 165-170.000.

Strachan, Gail L.: *See*—
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Straitz, John F., III, to Combustion Unlimited Incorporated. Flare gas burner. 3,822,984, Cl. 431-283.000.

Straitz, John F., III, to Combustion Unlimited Incorporated. Flare stack gas burner. 3,822,985, Cl. 431-284.000.

Straub, Melvin J.; and Schuett, Thomas L., to Possis Corporation. Packaging machine. 3,823,053, Cl. 156-500.000.

Strawn, L. C.; and Stanton, Vernon W., Sr. Marina protective wave breaker. 3,822,555, Cl. 61-6.000.

Strekopytova, Tatyana Andreevna: *See*—
Stekopytov, Alexei Alexeevich; Strekopytova, Tatyana Andreevna; Bogush, Lev Konstantinovich; Kuklin, Georgy Sergeevich; Super-Fainshtein, Naum Aronovich; and Severov, Viktor Sergeevich, 3,822,818.

Strom, Lars C., to Kaiser Industries Corporation. Apparatus and method for fluidizing and handling particulates. 3,822,919, Cl. 302-47.000.

Sugimoto, Isao: *See*—
Samejima, Masayoshi; Sugimoto, Isao; Suzuki, Akira; Koida, Yoshiyuki; Hirata, Goichi; and Tsukamoto, Goro, 3,823,091.

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Super-Fainshtein, Naum Aronovich: *See*—
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Sussingham, George: *See*—
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Suter, Walter, to Oehler-, Wyhlen-Sagertechnik AG. Process and a device for the fine positioning of a vertically movable platform in front of a pallet location. 3,822,766, Cl. 187-29.00r.

Sutton, Jack: *See*—
Sutton, Stephen John, 3,822,844.

Sutton, Stephen John, to Sutton, Jack. Parachute. 3,822,844, Cl. 242-145.000.

Sutton, Thomas E.: *See*—
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Suzuki, Akira: *See*—
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Suzuki, Kazuhiko, to Nippon Gakki Seizo Kabushiki Kaisha. Centralized electrical arrangement for musical performance by groups. 3,823,245, Cl. 84-1.040.

Suzuki, Yushin: *See*—
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Suzuki, Yutaka: *See*—
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Swarat, Walter, to Condux-Werk Herbert A. Merges KG. Apparatus for granulating strand or rod-shaped material. 3,823,301, Cl. 219-121.001.

Swedish Hospital Supply SHS AB: *See*—
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Symersky, Bohuslav, to U.S. Philips Corporation. Method of manufacturing a semiconductor device having a pattern of conductors and device manufactured by using said method. 3,822,467, Cl. 29-579.000.

Syntex (U.S.A.) Inc.: *See*—
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Szabo, Karoly; and Ganti, Venkat Rao. Novel m-(3,3-disubstitutedureido)phenyl (α-cyanoalkyl)carbamates and to a method for the control of undesirable plant species therewith. 3,823,178, Cl. 260-465.00d.

Szpitalak, Wesley J., to Continental Can Company, Inc. Apparatus for preventing printing of an empty mandrel. 3,822,639, Cl. 101-40.000.

Tabalba, Camilo Manansala, to International Standard Electric Corporation. Electronic telephone transmission circuit. 3,823,272, Cl. 179-81.00a.

Tabard, Jean-Louis, to Societe Genevoise d'Instruments de Physique. Dividing or indexing apparatus. 3,822,959, Cl. 408-89.000.

Tachimoto, Kazuo: *See—*
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Takayama, Takeshi; Tanita, Akeshi; Hoshina, Saburo; and Ohtaguro, Tadayasu, to General Corporation, The. Door locking system for an electrical apparatus. 3,823,294, Cl. 219-10.550.

Takeda, Masaaki: *See—*
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Tallack, Ian Christopher: *See—*
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Tanage Seiyaku Co., Ltd.: *See—*
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Tanaka, Kano: *See—*
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Tanie, Horoshi, to Toyo Rubber Industry Co., Ltd., The. Synthetic resin plug for vent hole of mould. 3,822,857, Cl. 249-141.000.

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Tate, Robert B. Dual action drill pipe mud wiper. 3,822,753, Cl. 175-84.000.

Tausanovitch, Dusan: *See—*
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Tazaki, Kazuo; and Kobayashi, Toshiro, to Fuji Denki Seizo Kabushiki Kaisha. Treatment of aluminum alloys. 3,823,041, Cl. 148-2.000.

Teach, Eugene G., to Stauffer Chemical Company. Bis-meta-phenylene ureas and their utility as herbicides. 3,823,188, Cl. 260-553.00c.

Techlite, Inc.: *See—*
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Television Research Limited: *See—*
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Termohlen, David E.; and Irvine, William G. Method of erecting a multi-level building of curtain wall construction. 3,822,522, Cl. 52-745.000.

Terzian, Reuben; McKay, Robert S.; and Glass, Marvin I. Toy motorcycle adjustable tethered to a pylon. 3,822,880, Cl. 272-31.00r.

Texaco Inc.: *See—*
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Texas Instruments Incorporated: *See—*
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Textron, Inc.: *See—*
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Tharaldsen, Nils Fr. Device for the lubrication of tooth flanks of gear wheels. 3,822,607, Cl. 74-468.000.

Tharp, Nelson B., to Westinghouse Electric Corporation. Antenna deployed from aircraft to contact a body of water for length reduction. 3,823,402, Cl. 343-705.000.

Tharpe, James B.; Aurich, Christoph W.; and Wallace, Joseph B., to Maremont Corporation. Textile silver unevennes detecting. 3,822,590, Cl. 73-160.000.

Thiel, Max: *See—*
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Thiele, Gary A.: *See—*
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Thigpen, Arnold B., Jr., to Texaco Inc. Method of treating subterranean formations to improve permeability. 3,822,749, Cl. 166-303.000.

Thoma, Friedrich; and Krusche, Peter, to Krupp, Fried., Gesellschaft mit beschrankter Haftung. Device for mechanically lifting cops on ring spinning and twisting machines. 3,822,540, Cl. 57-52.000.

Thomas, David F.: *See—*
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Thomas, Richard E., to Dick, A. B., Company. Method for making copy sheets with a concealed image and visual development of same. 3,823,022, Cl. 177-1.700.

Thome, Paul, to Babcock-Atlantique, S.A. Jacket for an assembly of nuclear reactor fuel elements. 3,823,066, Cl. 176-66.000.

Thompson, John T.; and Gillemot, George W. Combined shipping and dispensing carton for continuous bonding strip and insulated tubing therefor 6. 3,822,784, Cl. 206-391.000.

Thompson, Richard David, to Barker, R. E., & Co., Limited. Material handling equipment. 3,822,803, Cl. 214-620.000.

Thompson, Robert Clifton: *See—*
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Thorne-Symmons, deceased (by Thorne-Symmons, Irene, administratrix). Anti-siphon device. 3,822,717, Cl. 137-218.000.

Thorne-Symmons, Irene, administratrix: *See—*
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Throner, Guy C., Jr., to FMC Corporation. Method and apparatus for salvaging a sunken. 3,822,660, Cl. 114-50.000.

Thurk, Gerhard; and Beier, Helmut, to Siemens Aktiengesellschaft. High-voltage circuit breaker equipped with hydraulic drive. 3,823,286, Cl. 200-82.00b.

Tien, Ping King: *See—*
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Tittman, Jay, to Schlumberger Technology Corporation. Porosity determination with mudcake correction. 3,823,319, Cl. 250-265.000.

Toback, Henry, to General Battery Corporation. Leak tester for batteries. 3,822,585, Cl. 73-49.200.

Tobias, George S., to Envirotrol, Inc. Elimination of H_2S from slag quenching. 3,823,010, Cl. 75-24.000.

Tobin, Robert A. Bird feeder. 3,822,674, Cl. 119-53.000.

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Tokutomi, Seijiro; and Kawasaki, Masahiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Camera shutter controls utilizing light from different sources. 3,823,410, Cl. 354-33.000.

Tombu, Gerard. Hooking-on profiles for the attachment of wall covering fabrics. 3,822,734, Cl. 160-383.000.

Tomenceak, Arthur A., to Bullard Company, The. Contour machining. 3,822,618, Cl. 82-18.000.

Tomisawa, Norio; Uchiyama, Yasuji; Okumura, Takatoshi; and Takeda, Toshio, to Nippon Gakki Seizo Kabushiki Kaisha. Musical tone wave shape generating apparatus. 3,823,390, Cl. 340-172.500.

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Toray Industries, Inc.: *See—*
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Torii, Soichi; and Yamamoto, Hideo. Process and apparatus for compensating the yarn tension difference between two yarns on a spindle drive type winding machine. 3,822,832, Cl. 242-45.000.
Toriyama, Haruhiko: *See—*
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Ukai, Nobuo, to Tsukihoshi Kasei Kabushiki Kaisha; a/k/a Moon-Star Chemical Corporation. Glass bottles coated with multi-protective film layers. 3,823,032, Cl. 117-72.000.
Ulery, Harris Elisworth, to Du Pont de Nemours, E. I., and Company. Electrolytic process for preparing dialkyltin compositions. 3,823,077, Cl. 204-59.0qm.
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Unema, Norman P., to Laser Alignment Inc. Laser fanning device. 3,823,313, Cl. 240-44.260.
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Van Brakel, Russel A., to Haverberg Auto Laundry Equipment Co. Inc. Hubcap and lower detail washer for automobiles. 3,822,431, Cl. 15-21.00d.

van den Bussche, Willem, to U.S. Philips Corporation. Colour television camera. 3,823,260, Cl. 178-5.4st.

van der Stelt, Cornelis, to Gist-Brocades N.V. and Imidazoline derivatives with diuretic properties. , 3,823,155, Cl. 260-309.600.

van Elk, Cornelis Johannes; and Morrien, Albertus Marinus, to U.S. Philips Corporation. Synchronization system. 3,823,266, Cl. 178-69.50r.

van Kleef, Alfred L., to Shell Oil Company. Liquid discharge member for liquid-vapor contacting tray. 3,822,869, Cl. 261-114.00r.

Van Rheenen, Verlan H., to Upjohn Company, The. Lactone intermediates. 3,823,138, Cl. 260-240.00r.

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Vaud, John Raymond; and Simpson, John H., to Wire Rope Industries Ltd. Swaged wire rope and method of manufacture. 3,822,542, Cl. 57-145.000.

Vaughen, Jack F. Load bearing air cushion apparatus. 3,822,761, Cl. 180-121.000.

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Buschbom, Floyd E., 3,822,796.

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Verschuur, Eke, to Shell Oil Company. Oil/water pipeline inlet with oil supply via a large chamber. 3,822,721, Cl. 137-604.000.

Vestal, Charles R.; and Zimmerman, Carle C., to Marathon Oil Company. Polyisocyanate-polyisocyanurate process. 3,823,119, Cl. 260-77.5nc.

Vetrovec, Jan. Reinforced web making machine. 3,823,049, Cl. 156-441.000.

Vetter, Ulrich, to Schaudt Maschinenbau GmbH. Apparatus for the fine balancing of gringing wheels. 3,822,514, Cl. 51-169.000.

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Von Rauch, Moriz, to Siemens Aktiengesellschaft. Particle-beam apparatus such as an electron microscope or the like. 3,823,321, Cl. 250-442.000.

Voskoboinikova, Lidia Mikhailovna: *See—*
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Vouthier, Marcel, to Etablissements Carpano & Pons S.A. Ski binding with regulated release. 3,822,891, Cl. 280-11.55t.

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VueTech Corporation: *See—*
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Walbridge, Lyman H., to Kidde, Walter, & Company, Inc. Flame monitoring system. 3,822,981, Cl. 431-78.000.

Walk, Howard J.; Pietsch, Ervin I.; and Smith, Garth R., to ACF Industries, Incorporated. Rail-rubber mine car. 3,822,649, Cl. 105-215.00c.

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Ward, George T., to International Paper Company. Twin-wire papermaking apparatus with stock inlet passageway having straight and parallel walls. 3,823,064, Cl. 162-301.000.

Ward, John E., Jr.; and Garick, Bordie B., to Owens-Corning Fiberglas Corporation. Method of producing glass reinforced plastic articles. 3,823,219, Cl. 264-331.000.

Warner, Michael Walter, to International Business Machines Corporation. Flying magnetic transducer assembly having three rails. 3,823,416, Cl. 360-122.000.

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Waters, Elmer Dale. Heat pipe with pleated central wick and excess fluid reservoir. 3,822,743, Cl. 165-105.000.

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Wechel, Ernst. Apparatus for continuous transfer of a material rope from a pile to a following device. 3,822,617, Cl. 82-2.500.

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Wehrman, Roger. Powered lawn raker. 3,822,535, Cl. 56-61.400.

Wei, Peter H. L., to American Home Products Corporation. 2-Substituted-3a,4,5,6,7,7a-hecahydro-3a-hydrocybenxonthiazolium halides. 3,823,153, Cl. 260-306.700.

Weingarten, Joseph L., to United States of America, Air Force. Air flotation cargo handling system. 3,822,792, Cl. 214-1.0be.

Weinstein, Miriam. Illuminated book holder. 3,823,312, Cl. 240-6.40b.

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Weisgerber, Harold W., to Kirk and Blum Manufacturing Co., The. Oil mist recovery apparatus. 3,822,532, Cl. 55-324.000.

Weiss, Robert, to Sursee-Werke AG. Heating vessels. 3,823,307, Cl. 219-439.000.

Welch, Johnnie Steven, to General Computer Service, Inc. Data translator and recording system for use with tone generating telephones. 3,823,267, Cl. 179-2.0dp.

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Whitlock, James T. Chimney draft control device. 3,822,637, Cl. 98-74.000.
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Wieser, Rudolf, to Maschinenfabrik Andritz Aktiengesellschaft. Hot water pump with removable shaft bearing. 3,822,962, Cl. 415-201.000.
Wight, Edward M., to Glacier Industries, Inc. Extrusion cutting apparatus. 3,822,623, Cl. 83-171.000.
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Willasch, Dieter; Schiewe, Bernd; and Rindfleisch, Volker, to Siemens Aktiengesellschaft. Photographic film handling apparatus for charged-particle beam equipment. 3,823,322, Cl. 250-469.000.
Willen, Charles, to Willen, Charles & Cie. Tool holder assembly having means for selectively adjusting the position of the work tool. 3,822,619, Cl. 82-36.00r.
Willen, Charles, to Willen, Charles & Cie. Tool holder assembly having means for selectively adjusting the position of the work tool. 3,822,620, Cl. 82-36.00r.
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Wilson, George A., to I-T-E Imperial Corporation. Vacuum interrupter capacitance discharge and contact grounding system. 3,823,288, Cl. 200-144.00b.
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Wisnewski, John P.; and Treuhaft, Martin B., to PPG Industries, Inc., mesne. Device for agglomerating and separating particulates from a gas. 3,822,531, Cl. 55-315.000.
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Worsley, Paul R., Jr.; and Baker, Jerry D., to Valley Burglar & Fire Alarm Company. System for monitoring remotely related buildings. 3,823,391, Cl. 340-213.00r.
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Yamagishi, Iwao, to Eidai Sangyo Kabushiki Kaisha. Method of forming decorative sheet. 3,823,046, Cl. 156-220.000.
Yamaguchi, Mitsuji, to Universal Climb Co. Ltd. Fold-over face-type floor mat. 3,823,058, Cl. 161-119.000.
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Yoshino, Miyao, to Kabushikigaisha Nittsu Sogokenyusho. Elastic barchaped rack. 3,822,606, Cl. 74-422.000.

Young, George, to Varian Associates. Microwave down converter employing half wave open circuit resonators with output taken at voltage null of input signal. 3,823,380, Cl. 325-445.000.

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Zabin, Burton A., to Bio-Rad Laboratories. Determination of thyroid hormone uptake. 3,823,001, Cl. 23-230.00b.

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Zanft, Auram B., to Morse Boulger, Inc. Thermal sterilizer for contaminated air. 3,822,987, Cl. 431-353.000.

Zernike, Frits, to Perkin-Elmer Corporation, The. Phase matched optical wave generator for integrated optical circuits. 3,822,927, Cl. 350-96.0wg.

Zilber, Serge, to Clinical Technology Corporation. Electrical spinal cord stimulating device and method for management of pain. 3,822,708, Cl. 128-419.00r.

Zimmerman, Carle C.: *See*—
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Zirps, Wilhelm, to Bosch, Robert G.m.b.H. Pulsation damping device for use with pressure fluid operated apparatus. 3,822,725, Cl. 138-28.000.

Zivica, Robert F., to Select Market Inc. Wall plaque and method of fabricating same. 3,822,494, Cl. 40-154.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF JULY, 1974

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Automatic Pipe Racker, Inc.: *See*—
Smart, James E. Re. 28,071.

Brindell, Gordon D., and L. E. Dannals, to Uniroyal, Inc. Antistatic polymer compositions. Re. 28,070, 7–9–74, Cl. 260—29.7.

Canada Valve Ltd.: *See*—
Fortune, Ronald, Mills, and Woods. Re. 28,069.

Dannals, Leland E.: *See*—
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Fortune, Ronald, E. G. Mills, and J. B. Woods, to Canada Valve Ltd. Indicator posts for use in conjunction with valves. Re. 28,069, 7–9–74, Cl. 116—125.

Hycor, Inc.: *See*—
Hyman, Joseph. Re. 28,067.

Hyman, Joseph, to Hycor, Inc. Collapsible rod. Re. 28,067, 7–9–74, Cl. 135—15.

Lemelson, Jerome H. Article decoration apparatus and method. Re. 28,068, 7–9–74, Cl. 264—24.

Marcyan, Walter. Single-station multipurpose body-exercising machine. Re. 28,066, 7–9–74, Cl. 272—81.

Mills, Ernest G.: *See*—
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Owens-Illinois, Inc.: *See*—
Trudeau, Urban P. Re. 28,073.

Sluijters, Robert, by Akzona Inc. Mixing apparatus. Re. 28,072, 7–9–74, Cl. 259—4.

Smart, James E., to Automatic Pipe Racker, Inc. Portable type handling apparatus. Re. 28,071, 7–9–74, Cl. 214—1.

Trudeau, Urban P., to Owens-Illinois, Inc. Apparatus for handling mold charges of molten glass. Re. 28,073, 7–9–74, Cl. 65—304.

Uniroyal, Inc.: *See*—
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Woods, James B.: *See*—
Fortune, Ronald, Mills, and Woods. Re. 28,069.

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Anderson, Charles E., Jr. Newspaper carrier handcart. 232,018, 7–9–74, Cl. D12—34.

Asaki, James T.: *See*—
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Bamesberger, William A. Milk can planter. 232,048, 7–9–74, Cl. D35—3.

Bardeau, William M. Grilling apparatus. 232,012, 7–9–74, Cl. D7—88.

Beldarrain, Francisco, to Orbaiceta, S.A. Electric heater. 232,028, 7–9–74, Cl. D23—110.

Borsuk, Joseph, to Foxcraft Products Corp. Portable vehicle ramp. 232,020, 7–9–74, Cl. D12—53.

Coleman, Gerald A. Fireplace grate. 232,014, 7–9–74, Cl. D7—207.

Crawford, Ralph W., to The Quaker Oats Co. Toy cow. 232,046, 7–9–74, Cl. D34—15.

Cyren, Gunnar, to Dansk Designs Ltd. Salad server. 232,013, 7–9–74, Cl. D7—104.

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Denton, Louis J. Ice bucket. 232,011, 7–9–74, Cl. D7—78.

Dinnerstein, Albert J.: *See*—
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Esquire, Inc.: *See*—
Gore, Fred M., and McFarlin. 232,050.

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